Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL, AND OTHER IMPROVEMENTS.

VOLUME X.] NEW-YORK DECEMBER 16, 1854. [NUMBER 14.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY
At 128 Fulton Street, N. Y. (Sun Buildings.)
BY MUNN & COMPANY.

O. D. MUNN. S. H. WALES. A. E. BEACH.

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Olive versus Lard Oil.

At a late meeting of the Farmers Club, connected with the American Institute, Prof. Mapes asserted that what "we receive as pure olive oil in the market, is nothing more nor less than the surplus lard sent by our pork merchants to France, where it is transformed into the *genuine article* of sweet oil and returned to be used at the tables of those very persons who exported it in the solid state." This is certainly refreshing information for the lovers of pure sweet table oil among us, and is no doubt perfectly true. We venture to say that not one-tenth of the oil sold for that of the olive, in our country, is any thing else than lard oil.

Any person can convert the common lard oil sold for burning in lamps, into as good sweet oil as that which is generally sold for olive oil, by the following process:—Take, say about a quart of the common oil, and place it in a clean tin pan, and set it on a stove, bring it up to about the heat of scalding water, and then add about one quarter of an ounce of sal soda dissolved in half a teacupful of hot water. Stir this into the oil for about five minutes, then take off the vessel, and allow it to cool. When the sediment settles on the bottom of the vessel, the clear should be poured off into a clean bowl through a white cotton cloth, to strain it.—The oil obtained by this treatment is sweet and pure, excellent for oiling fine machinery, and for making perfumed oil for the hair.

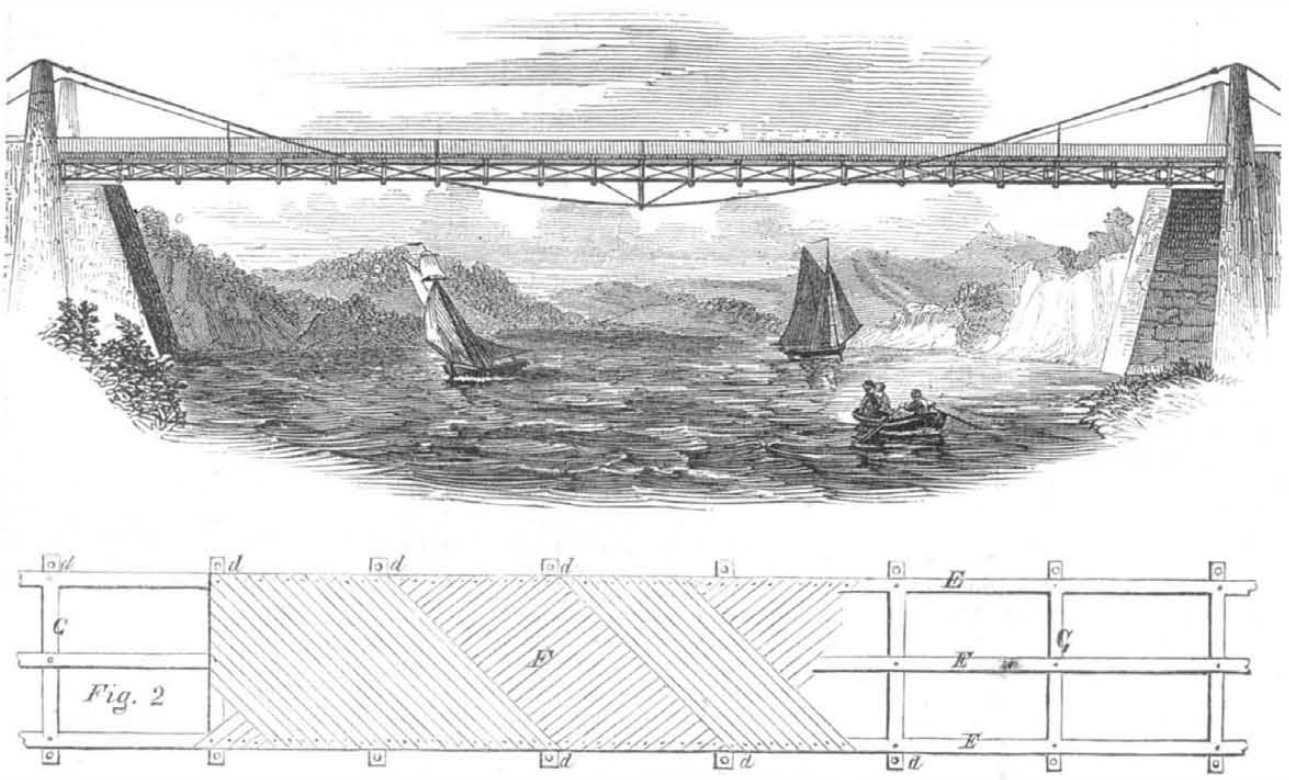
New Mordant in Dyeing.

A Swede, named Rydin, has published a method of obtaining a fine blue, of excellent tint, for cotton, by employing as a mordant the oxyd of chromium, dissolved in an acid; in place of this oxyd, a double salt may be used, such as the double sulphate of chromium and potash. This salt is obtained by mixing one part of a solution of bichromate of potash, and one part and a half, or two parts, of sulphuric acid. Alcohol, sugar, or any other substance capable of converting the chromic acid into an oxyd of chromium, may be added. The oxyd is added to a decoction of logwood, and the dyeing may be effected in one operation, by putting together the salt, the decoction, and the cotton, and heating the whole. Or the cotton can be treated with the salt, hot or cold, and may then be placed in the decoction until the desired color is obtained. By varying the proportions of the salt to the decoction, very delicate shades of gray and lilac may be obtained.

Sir John Franklin.

A story was propagated through all our daily papers last week, of Dr. Kane's party having discovered the frozen remains of Sir John Franklin and his men. Dr. Kane's party were last heard from at Smith's Sound, and it does not seem probable that they had gone to Back River, where Sir John Franklin's party are supposed to have perished.

PATENT TRESTLE WIRE SUSPENSION BRIDGE.

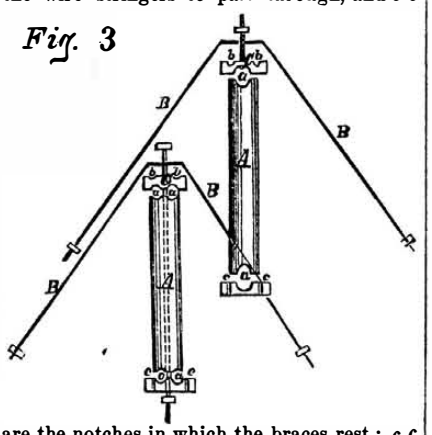


The annexed engravings are views of an improved wire trestle bridge, for which a patent was granted on the 17th of October last, to John Yandell and Joseph H. Johnson, of St. Louis, Mo.

Figure 1 is a perspective view; figure 2 is a top view showing part of the flooring, and figure 3 are section views of the studs and wire braces. It will be observed that the bridge proper is combined with suspension cables; this combination is embraced in one of the claims, and the other is for the peculiar method of connecting the several parts together in the tension trestle work, both claims will be found on page 54, this volume, SCIENTIFIC AMERICAN. This we have stated to present a clear idea of the nature of the invention as claimed and patented. The combination of the suspension cables with the bridge proper requires no explanation; the figure tells its own tale.

In figure 3, A A are two studs with caps C C, at top and sole plates at their base; B B are braces. They have nuts and screw bolts for securing them in the caps and studs, and in the sole plates; *a a* are openings for the wire stringers to pass through, and *b b*

Fig. 3



are the notches in which the braces rest; *c c* are the slots in which the braces are fastened, and *d d*, in figure 2, are the points of the cross ties, C C, for fastening the studs; E E are the stringers, and F is the flooring. The flooring is well secured to abutments, as are also the side rails. This bridge is equally applicable to common and railroad purposes. It is especially suitable for strong bridges of long span by combining the suspension and common bridge together.

The construction of this bridge is so simple, and its general features so well understood, that no further description appears to be necessary. There are but few who have not some general idea of bridge construction, and those who are versed in the building of such structures will understand all the parts of this bridge, their relations and adaptations by the engravings here presented.

More information respecting this bridge may be obtained by letter addressed to J. H. Johnson, care of Dowdall, Carr & Co., engine builders, St. Louis, Mo.

American Shawls.

At the Bay State Mills, in Lawrence, which next to the new Pacific in Lowell, are the largest in the world, there are annually manufactured four hundred thousand shawls valued at upwards of a million and a half of dollars. Some of these shawls are designed to protect the stalwart shoulders of the sterner sex, and others, resting lightly upon the shoulders of the fair, heighten the charms which render women irresistible. The prices of the most costly shawls, chiefly for gentlemen's wear, range as high as ten and thirteen dollars. The Bay State Mills consume forty thousand pounds of wool in a day, or upwards of twelve million a year. The fleeces of at least three million sheep are annually required to supply their demand. The Bay State Mills give employment to two thousand operatives.—[Boston Journal.

["Gentlemen's shawls" as they are called, are becoming very common; they are a very comfortable article of personal furniture, but properly speaking, they are really no more shawls than cloaks are coats. They are fringed at the ends but not the selvedges, and are twice as long as they are broad. The proper name for them is "maud" and "plaid."

American Artists in the Paris Exhibition.

Healy, the American artist, it is said, intends to offer to the Paris Crystal Palace, next May, his portraits of Miss Smead and Mr. Peabody, of London. Miss Smead is the lady whom the public will remember as the beautiful English girl to whom, once on a time, the Emperor was so very attentive, and from whom the Empress thought proper, in consequence, to withdraw an invitation to visit the Tuileries.—American resident artists generally are to take part in the exposition. Messrs. Hunt, May, Babcock, and Branch, painters, and Mr. Story, sculptor, are to be among the contributors.

A Vegetable Curiosity.

We have received a curious piece of crooked stick,—in size about the thickness of our small finger, and a foot in length—the history of which is somewhat curious, as the following extract from the letter of Ellis Nordyke, of Richmond, Va., the gentleman who sent it, will show:

"In the spring of 1837, I procured four small trees, of two years growth, of the English mulberry, from a gentleman who sent to England for the seed; I cut off the tops and small limbs, leaving only one stalk for each. These I planted and cultivated for shade trees, and they grew rapidly. In the spring of 1853, I cut them down and split them open, when, lo, I was astonished to find the identical plant of the trees which I planted sixteen years before, fall out of the center of each in a perfect state of preservation, showing the very knife marks which I had made in trimming them."

The stick that we have received is one of these, taken from the top of the largest, which had grown to be 12 inches in diameter at the butt.

A Correction Required.

The Albany *Knickerbocker* of the 8th inst., in copying our editorial remarks on "The Effects of Fires on Business," employs a 9 for an 0, in the sum stated for yearly losses by fires which makes an error of $162,000,000 for 18 years, by not quoting correctly. We are not held responsible for the error, as no credit is given by our cotemporary, but as we have quite a number of readers in old Beaverwick, who would know the headmark, we thought the correction necessary.

The New Englanders living in Montreal propose to celebrate, for the first time in Canada, the Landing of the Pilgrims.

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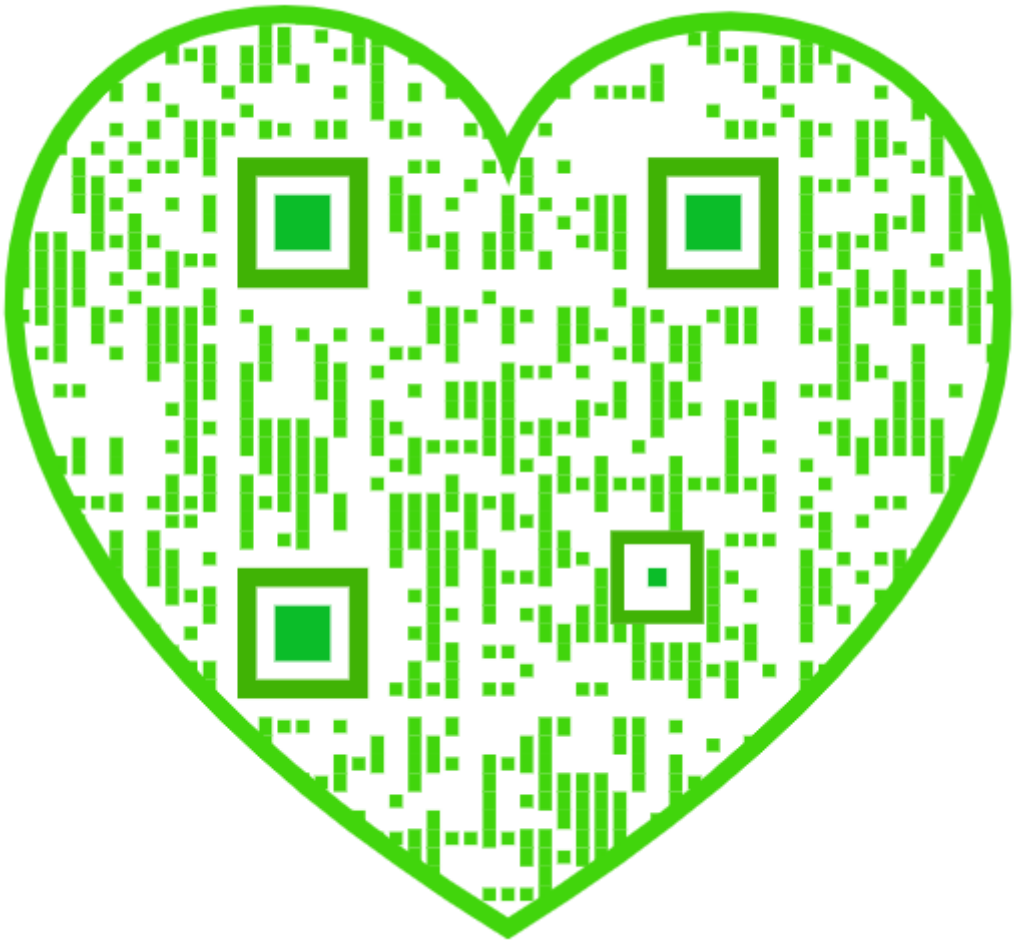

Ventilation of Sewers.

The importance of destroying, by means of ventilation, or some other agency, the noxious quality of the gases which constantly arise from the sewers of London, sowing in the atmosphere the invisible seeds of sickness and death, has of late much engaged the attention of the scientific men of that city. Among the various expedients proposed, the following plan, suggested by James Nasmyth, in a letter to the London *Times*, seems best adapted to the end in view, and may be worthy of consideration by the government of New York :—

"It is well known to all who have given their attention to such subjects, that no noxious effluvia, proceeding from the decomposition of vegetable or animal matter, can retain their noxious qualities after having been subjected to a temperature of 700°.

In all our cities there are numbers of steam engine and other manufactory furnaces, having a powerful draught in connection with lofty chimneys. In order not only to exhaust the foul air from our sewers, but at the same time deprive such foul air of all noxious qualities, we have only to cause these furnaces to draw their supply of air from the sewers in place of from the above-ground open air.

This object can be brought about in the most simple manner, namely, by connecting the space below the fire-grate of such manufactory and other furnaces with the main sewer nearest to them, by a suitable tunnel or air passage. Every such furnace and chimney so connected will exhaust the sewers of the district of their foul air, and in drawing the noxious gases up through the burning fuel, will entirely deprive them of all pestiferous qualities, and send them forth from the top of the chimney comparatively harmless, along with the products of combustion.

No perceptible difference would be experienced in the heat-generating power of a furnace, whether it draws its supply of air from a foul sewer or from the fresh air above ground. The air of a sewer, which would prove destructive to life, will sustain combustion to all practical effect as effectually as the most pure atmosphere.

It occurs to me that, were we to require the proprietors of furnace-using manufactories located in our towns to aid in performing this vitality important public service, it would only be a fair return for the premium they enjoy of feeding their furnaces with the vital air of the locality."

The great number of steam engines which are employed in cellars in New York, especially for driving printing presses, might easily take their supply of air for the boilers through tubes connected with the sewers.

Hot Air Engine again.

Mr. Ewbank having written a number of articles on the above subject for recent issues of the *Journal of the Franklin Institute*, he has been answered in the last number of that Journal by Mr. Bloodgood and Captain Ericsson, of this city, in two separate articles. The object of Capt. Ericsson is to disabuse the public mind respecting any claim set up by him for a perpetual motion in his engine. And yet it is a positive fact that in his very denial of this claim he uses language which covers such a claim to the fullest extent. He claims in one place to "employ the *caloric* over and over again," and in another place he supposes caloric to be motion, and says his object "is not to reproduce the motion once imparted, but simply to exhaust the whole motion." This is like saying, "I use the motion over and over again, but at the same time, remember I do no such thing, I only use the *whole* motion." It is a great pity that Capt. Ericsson is such a poor logician. Neither Mr. Bloodgood nor Capt. Ericsson have any just cause for complaining of public opinion respecting the claims of the latter for a perpetual motion. It is as plain as a sun beam, that the man who has set up a claim for employing the same caloric over and over again, claims nothing less than a perpetual motion. In his patent he uses the following language :—"The mode of applying the caloric being such that after having caused the expansion and dilitation which produces the motive power, the caloric is transferred to certain metallic substances, and again retransferred from these substances to the acting medium at certain intervals, *the principal supply of caloric being thereby rendered* independent *of combustion* or consumption of fuel." Is not this a claim for a perpetual motion? Certainly it is, and it is too late in the day for Mr. Bloodgood or Capt. Ericsson now to raise any question as to public misapprehension of this claim, and there is no use of trying to throw dust in the eyes of the public respecting what the claims of Ericsson were and what they now are.

Stretching Cloth.

J. J. Hilliard, of Fall River, Mass., has made an improvement in spreaders for spreading and stretching cloth for which he has taken measures to secure a patent. This machine is composed of a series of parallel serrated bars, having a rotary motion around a common shaft or axis, and at the same time a longitudinal motion parallel with the shaft, but the bars are connected with the shaft, and have their longitudinal movement produced by a different method to those of the common spreader, whereby the friction is much reduced, and the spreader itself is more easily acted upon by the friction of the cloth upon the bars, and beside the cloth may be stretched to a greater degree than by the old spreader. It is this improved method of connecting and giving motion to the bars which embraces the features of the invention.

Machine for Cutting Fine Shavings for Upholstering.

A machine for cutting wood into very fine thin shavings for upholstering purposes, such as stuffing mattresses, &c., has been invented by Samuel R. Smith, of Hadley, Mass., who has taken measures to secure a patent. The cutters in this machine are made to pass over the stuff or wood, (which is placed in a frame) and cut a broad and very thin shaving, and there are a number of small slitters which cut this broad shaving into quite a number of narrow ones. The cutters pass over the stuff, and can be set to cut a shaving any degree of fineness. The whole of the parts are ingeniously arranged to accomplish their work in a superior manner. Willow shavings possess great flexibility. For the purposes named they are a cheap and excellent material.

Discoveries in Electricity.

We understand that the new magneto-electric machine invented by Dr. C. Carpenter, Jr., of Providence, R. I., and for which patents for the United States and five European Kingdoms, were secured through this office, is now in use at the Fire Alarm office in Boston, and that it works to the satisfaction of M. G. Farmer, the Superintendent. This machine is constructed with the intention of superseding the galvanic battery for working telegraphs, &c. The current is generated by mechanical action, by the rotation of one series of magnets over and near the poles of another set of magnets, by which the electric current is developed and made to flow in a uniform continuous current.

Operating Window Shades.

Application for a patent has been made by John C. Grant, of Salem, Mass., for an improved arrangement of devices consisting of a conical roller and coiled spring, connected to the shade roller by a chain, and also to a weighted wooden slat, secured in the shade, by which the latter is kept finely balanced, so as to remain at any desired point, and can also be moved up or down by the slightest touch of the hand.

Cutting Metal Pipes.

A machine for cutting metal pipes has been invented by Nathan P. Brighton, of Mass. The nature of the improvement consists in having a series of cutters secured to elastic arms, which are so arranged that their pressure will force the cutters into the pipe, while either the pipe or the cutters are being turned, and thus cut off the pipe. Measures have been taken to secure a patent.

Improvement in Bread Making.

A correspondent in the *Tribune* of the 5th inst., signing himself "Science," asserts that a process has been discovered by a gentleman who has devoted much time to organic chemistry, by which one loaf of bread made by his improvement contains "as much nutriment as three of the same size of the ordinary bread in the market." He asserts, "it contains all the nutritive qualities of the best wheat, in addition to other health invigorating properties, which no other bread contains." This is rather an extravagant statement. He says the discovery is of importance to the poor. No doubt it is, if true, and if he is a philanthropist, he ought to publish the discovery for the benefit of the poor, in these hard times. We do not believe that any person has made such a discovery, and we dare the correspondent of the *Tribune* to meet the question in the light of truth and science.

Newspaper Postage.

The Postmaster General in his report recommends and increase of postage on newspapers, in order to raise the revenue of his Department, which shows a deficit of income in proportion to the expense by more than a million of dollars. We hope no change will be made in the law at this session of Congress; let the present law be tried for another year before it is altered. The general revenue of the government presents a large surplus, and there is no pressing necessity for government funds. A part of the surplus revenue can be paid over to the Post Office Department to liquidate its expenses, and there is some virtue in this, for in thus applying it, we know it subserves a good object, whereas the revenue of the government is often applied to objects of no public benefit whatever.

It is our opinion that our Post Office system is yet very far from being perfect, and very far behind what it should be in efficiency, economy, and utility. This, in a great measure, is owing to the many changes which have taken place in the heads of that Department. How can it be expected that a man who has devoted all his life to law, can make at once a good Postmaster by transferring him from the Bench to the Postmaster's desk? It is unreasonable to expect it, and lo this is what has been the custom in Washington every few years. The Government of the United States is made up of lawyers; the heads of all the departments are lawyers, without a single exception. We have no objections to lawyers, for we despise feelings of caste, and this is the very reason which leads us to make these remarks, as it is very evident that our present federal government is one of caste. An able merchant, from the very nature of the business in which he has been brought up would make a better Postmaster General than a lawyer, and there are also many other offices which merchants would fill much better than lawyers, such as Collector of Customs in this city. It is a shame and a disgrace to our country, that so few merchants and mechanics are appointed to offices in their very line of business, and these offices given to lawyers, out of *their* line of business. Our lawyers, who are generally shrewd and intelligent men, will feel the force of what we say, and will admit the justice of our remarks.

A Newspaper.

It was Bishop Horner's opinion that there is no better moralist than a newspaper. He says, "The follies, vices, and consequent miseries of multitudes displayed in a newspaper, are so many beacons continually burning to turn others from the rock on which they have been shipwrecked. What more powerful dissuasive from suspicion, jealousy, and anger than the story of one friend murdered by another in a duel? What caution likely to be more effectual against gambling and profligacy, than the mournful relation of an execution, or the fate of a despairing suicide? What finer lecture on the necessity of economy, than the auctions of estates, houses and furniture? Only take a newspaper, and consider it well—*pay for it—and it will instruct thee.*"

(For the Scientific American.)

Comets—Light and Heat.

In the Scientific American of the 2nd inst., J. Wise propounds certain queries relative to the purposes and orbits of comets. This subject is and has been to astronomers, what free-will and predestination is and has been to theologians, a *terra incognita.* But as it is so only because of our ignorance of their elemental structure, and the peculiar laws adapted to the government of these erratic bodies, investigation may dispel the clouds. and solve the problem of their elliptic orbits, and perhaps of their design and purpose in the universe of spheres.

May it not be that comets are masses of something, not to say matter, holding no analogy to the material masses of our planets, and governed by laws having no analogy to planetary laws? May they not be agencies for collecting, and carrying, and depositing, some great fundamental element of the heavenly bodies, as light, or heat, or electricity, which is continually thrown off into space? For instance, supposing them collectors and carriers of the yet undetermined elements which constitute light and heat, which have been thrown off from the sun or suns, and have become latent and inert in the vast wilderness of space; they attract and are attracted by the sun, by a power similar to that of electric attraction, and as they come within a certain distance of that body they begin to discharge their accumulated freight, and until they have made a full discharge, are whirled by the attractive power, and their own momentum, around the sun in close proximity, and now being in electric equilibrium with the sun, the power of electric attraction gives place to a co-ordinate power of electric repulsion, and it flies off in a tangent through space, attracted now by those elements which it gathers up in its progress (which had radiated from the sun and lost their vitality) which had before repelled it when freighted and laden, and hastened it onward, in its voyage to the sun. And thus it travels on, perhaps, till laden again with elemental light and heat (latent) it comes within the attractive energies of another sun whose formation has become partially exhausted by radiation, and there discharging its freight, is driven back on its return voyage by the electric repulsion, and gathering up the stray fragments of light and heat, comes again within our sun's electric influence to undergo another unloading process, and be again pushed off.

That comets do subserve some great and good purpose in the economy of nature, there need be no doubt, for all the works of God, as the creations of wisdom, are agents for the accomplishment of some design. And perhaps some more competent mind may here either find or be led to find a clue by which to unravel satisfactorily this astronomical enigma.

E. Wilbur.

Albion, N. Y., Nov. 30, 1853.

[Neither *light* nor *heat* should be called "elements." They are the product of motion, like music. The idea which our correspondent presents, however, respecting comets exhibiting opposite states of electric polarity, under different conditions, is well worthy of consideration. We believe that the sun and the planets are in opposite states of polarity, and that a constant magnetic efflux is flow from each other, and that this is the cause of natural light and heat.

Magnetic Iron.

The Lake Superior *Journal* states that some very fine specimens of magnetic iron have been discovered on the shores of that lake, and that samples of it are to be tested in the manufacture of steel. If the test shows this iron to be what the account of it represents, this discovery will be important and valuable. So important is a superior quality of magnetic iron, that manufacturers in England have this season sent scientific men to this country and the Canadas, to test the iron ores with a view to discoveries of it.

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How Far does the Law Protect Unpatented Inventions.

A singular case involving this question, was recently decided in one of our city Courts, that of Deming vs. Chapman. The plaintiff claimed to be the rightful owner of a secret mode of marbling iron, slate, &c., and to have imparted the same to defendant, upon his having stipulated not to disclose it. The evidence rendered it most probable that the invention was communicated in a perfect state to the plaintiff by a party who had no authority for the purpose. This would of course have been fatal to the plaintiff's application for an injunction preventing the defendant from divulging the secret in question. But a further question presented itself, and was decided in the negative by the Court, to wit, "Can the law enjoin a party against divulging an unpatented invention?" The Court being of opinion that this could not be properly done, dismissed the suit, on the ground that inventors must protect themselves by the appointed method of the patent laws, and further that the very investigation which would be required in cases like that in question, would reveal the secret in controversy, and thus annihilate the very cause of action.

But the objection last specified is certainly not one which would not apply to many cases. For example, I might claim to have instructed a party confidentially, in any novel artistic process, and I might be able to show by the party's own confessions, that he had divulged the secret, in violation of his previous agreement. In such a state of things how would there necessarily be any revelation of the secret in controversy?

While a secret is locked up in my own brain, it is mine. It is my property. If it is not my property, why do patent laws or copyright laws, as the case may be, secure me for a time its exclusive use and enjoyment?—Those laws cannot surely bestow upon me that which is the common property of mankind. My secret inventions then are my own. And if this be so, does not he who is allowed to share in them, on his promising fidelity to my interests as an inventor, violate a legal right by proclaiming to others what I have so communicated? As well might he to whom I lend a machine take it to pieces and destroy it. Such, at any rate, seems the suggestion of common sense, and it is to be hoped that the preceding decision may be revised. D.

New York, 1854.

[The Court to which our correspondent alludes could make no other decision than the one it made, either upon the principles of common law or common sense. Our correspondent endeavors to make out a strong case of secrets being legal property, to be protected by law. In the name of common sense, how could the law throw its shield of protection over *that*, for which no tangible evidence of its existence had been offered. Upon the same principle of reasoning as that of our correspondent, a crow may have some very valuable rights which should be protected by law, such as the faculty of smelling gunpowder at a great distance, a quality which is attributed to this biped. A secret may be very valuable to a man, and he may call it *his property*, but it cannot be commonwealth property also; how then can the law recognize it.

Even in the case which our correspondent has presented, were his principles of reasoning correct, his conclusions are wrong. When a man possesses a secret and reveals that to another, it is no more his property, if a secret is property; how then can he ask the law in its power and honor to protect him in his secret, when he dishonors the law by withholding his secret from the Court. He is mistaken in reference to the patent laws and the law of copyright granting exclusive use to authors and inventors for secret property; these laws do no such thing, they only protect that which has a tangible existence, (books, machines, manufactures, processes—not secrets,) and has been revealed for the use of mankind. Our correspondent's special views, like those of Mr. Saloman in another letter, are "thoughts are real property," like concrete substances. If this were a dry fact, a fool might be a very rich poet, historian, or inventor. The comparison made by our correspondent respecting the person to whom he reveals a secret proclaiming it to others, and the man breaking the machine which he lends him, is correct so far as it relates to honor, but that is a very different question from one of legal tangible property. As the law cannot punish a person for exercising his *thoughts*, however offensive they may be to the law, we think it rather too much of a joke to ask the law to protect a man in his thoughts. If the plaintiff in the case referred to by our correspondent, is not pleased with the decision made by the Court, we recommend him to carry it up to some of the spiritual courts—not religious—but the table-tipping spiritual circle kind. They like to deal in such hazy indefinite matters, but as we belong to the concrete mass of jurists, we must insist upon *prima facie* evidence, and no other. There is one instance on record, however, of our correspondent's theory being carried out in practice, and it can be so done again under the same circumstances by any other person; we allude to Alexander Selkirk, on the Island of San Juan Fernandez, "Sole monarch of all he surveyed."

Reform of Patent Laws—Models.

Messrs. Editors—Permit me to offer an amendment to your opinion on the "Model System—How long shall it be continued?" You say, "We trust that among the amendments to the Patent Laws to be brought forward at the approaching session of Congress, one of them will authorize the immediate abolition of the model system." Now I propose to let it read "the immediate abolition of the whole Patent Office system." Reason: Why should an author, when he has composed and invented, and has put together words and sentences to make a book, have the privilege to protect his invention by simply declaring "Entered According to Act of Congress in the year * * by A. B., in the Clerk's Office of the District Court, and an inventor of arts, sciences, and mechanics should not do the same? Yours, &c.,

John C. fr. Saloman

P. S.—You will be so kind as to inform me of the difference between the inventor of a literary work and the inventor of a mechanical work. Can the invention of a mechanism be done without thinking, or can the invention of a literary work be done without thought? If we both have to think, of course not alike in purpose but yet alike as inventors, why should we not have the same privilege before the law of the country?

J. C. fr. S.

[Our correspondent is evidently not acquainted with the law of copyright, or else he has not studied his subject. If inventors were placed under the same law as that of copyright, they would find themselves subject to more expenses in obtaining copyrights, and after they were obtained they would afford them little or no protection. Any historian can use the same facts as another whose work is copyrighted if he presents them in a different manner, but inventors would look blue if this were permitted with the leading features of their machines; and yet this is what they would have to do if they were to subject themselves to the law of copyright. Our correspondent is also in evident error respecting models, if he supposes that the law of copyright would grant immunities to inventors with respect to models. Every author must deposit a copy of his work in the District Court to secure his copyright, and also provide a copy for the Smithsonian Institute. These deposited copies are the legal records of the author's copyright. An inventor by this system would have to deposit his model with the District Court, as the legal evidence that he has constructed such a machine, to show that the *thoughts* which he speaks of, were not mere dreams. The Patent Office is one, simply of examination, record, and certificate, and as machines are so different from printed books, the same method of record suitable for one is altogether unsuited for the other. Thus it is scarcely possible for any person to infringe an author's copyright innocently; we never heard of the infringement of a copyright by an innocent person—that is, two different persons having written the same book unknown to one another; but it is very different with machines; many such cases have occurred and may again. The Patent Office is instituted to prevent the granting of patents for like inventions, in order to protect original inventors, and those who purchase from them. This could not be done by the law of copyright, as proposed by our correspondent. Such a law, therefore, while it answers very well for books, maps, &c., would not answer for the protection of the rights of the inventors of machines.

Fusible Plug for Steam Boilers.

It is well known that plugs of metal composed of some alloy fusible at a comparatively low temperature, has been prescribed for steam boilers, especially those of the steamboats on our Western waters, so as to insure greater safety to the traveling community, as well as engineers themselves. Some have contended that these plugs were a perfect protection against too high steam pressure (whereby its heat is increased) and also against low water in boilers; others again have contended that they were of no use whatever, not being uniformly reliable, either as to the degree of heat at which they will melt when new, also by altering their nature entirely when used for some time, so as to be in no manner different from the metal of the boiler itself as it respects melting. This subject being referred by the St. Louis Association of Steamboat Engineers to a Committee of its members, they have examined into the matter and made a Report of their labors. In that Report they mention the experiments with Easton's and Evan's safety guards of fusible alloys, and point out their uncertainty, and conclude as follows:—

"Finally, Mr. President and gentlemen, after having given this subject our most careful consideration, and after having proven our opinions, by many years experience as practical engineers, during which we have had the most ample means of determining the the value of alloy safety valves, we have arrived at the candid conviction that they are useless to the engineer, and of no protection to the traveling public. On this subject we are fully aware that we hold a peculiar position, one that exposes any opinion of ours to the imputation of being based upon selfish or professional considerations. But such imputations we hope and believe our candid fellow-citizens will discountenance. As before said, any device that can be relied upon for the prevention of steam boiler explosions is of more importance to us who are certainly exposed to the dangers resulting from the casualty than to any other class of persons. We can, therefore, have no prejudices against any that can be relied upon. But we claim to have the same confidence reposed in us as we repose in our fellow-citizens, and we ask that our profession shall be treated with the respect that is given to others of like responsibility.

We have and are always willing to give all the guarantee that may be required of us, for the faithful performance of our duties, and in return we ask that we shall be protected in the correct discharge of those duties, against the prejudices or the fears of the public, and particularly against the interested property of those who are too often ready to avail themselves of these prejudices, or fears for their own interests. In conclusion, permit us to say that if the Congress of the United States shall still insist upon the use of fusible alloy safety guard, we respectfully ask that it will cause such investigation to be made and such manufactures of these alloys established as will insure them to be uniform in operation and satisfactory in their results, (if these are practicable,) and that the mechanical device, by which the alloy may be applied, be left open to the inventive genius of the country; the best of which to be determined from time to time by some proper and competent authority.

All of which is respectfully submitted.

Wm. C. Chappell, Jos. C. Cyle, Jas. Rose, Committee."

Recent Foreign Inventions.

Portable Vapor Bath—C. A. Noedl, of London, patentee.—This patent embraces a broad pan containing water, and a place underneath it for a lamp. It is placed beneath a cane or wickerwork bottomed chair, and the lamp ignited, when the person who is to use it seats himself undressed upon the chair and covers himself (around the chair,) with a blanket. In a very short time vapor rises from the pan, and coming in contact with the body excites profuse perspiration; he then sponges himself and afterwards dries with a cloth. This is certainly an easy method of taking a vapor bath; a pan of hot water placed on a common foot stove would answer the same purpose.

Making Pills Easy to Swallow—A. H. Cox, of London, patentee.—In order that persons may be enabled to swallow pills which have a bitter taste, with complacency, he takes a gum—like lac—which is incapable of being dissolved by water or saliva, but which can be acted upon by the juices of the stomach, and dissolves it in alcohol, and immerses the pills in this, so as to coat them; in other words, varnishes them. We apprehend they are scarcely equal to our Yankee sugar coated ones.

Indian Meal Sizing—J. Greenwood, of Irwell Springs, Turkey-red dyer, and R. Smith, manufacturer, Bacup, all in Lancaster Co., England., have obtained a patent for employing finely ground and bolted indian meal for sizing, stiffening, and finishing textile fabrics, such as cotton and linen goods, that is, they use corn flour as a substitute for wheat flour, for stiffening their goods.

Creating Draught in Chimneys—T. Hawkins, of London, L.L.D., patentee. This invention consists in causing the wind to act against a surface slanting obliquely upwards, whereby itscourse is changed to an upward direction, the consequence being an upward draught for the smoke; the top of the chimney to accomplish this is made like the funnels of some steamboats, flaring upwards.

Cement—Benj. Fullwood, of Bermondsey, Surrey, Eng., has obtained a patent for making a cement by calcining charcoal with chalk and the oxyd of zinc. After being well calcined in a proper kiln, these materials are suffered to cool, then ground to powder, and in that state are fit to be mixed with water and make a good cement.

Bleaching Hemp—C. Watt, of Gloucester Gardens, Kentish-town, Eng., a practical chemist, patentee.—This method of bleaching hemp, flax, &c., consists in subjecting them first to an alkali, and afterwards to that of hypochlorite or chlorite of soda. This method of bleaching linen fabrics was employed before the chloride of lime—the common bleaching substance—was used.

Sir Isaac Newton—An Example for Boys.

In the middle of the seventeenth century there was an English boy of mean and diminutive appearance, and behind all other boys of his age. He was constantly at the foot of his class, and verily it was believed that this boy would become only a bungler of some kind, for surely the soul of learning was not in him.

At the age of twelve a change was wrought in the character and fortune of the youth that had never obtained a "reward of merit," and was regarded by teacher and schoolmaster as an inferior. At this time an altercation took place between this backward boy and the one above him in the class, whereupon the latter treated him with indignity and violence.

The pride of the boy was outraged. He could not revenge the insult by a blow, because he was too weak to cope with his opponent physically. How, then, shall he humble his assailant? He resolved to surpass him in study, to get above him in the class and there remain, to look down upon his enemy, and clip from him the laurels he so indiscreetly wears. He resolved—accomplished; became a most devoted scholar; commenced a career of glory; and Sir Isaac Newton appeared with a key to unlock the mysteries of motion and to draft a true chart of the stupendous universe.

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New Inventions.

Drain Tiles

The subject of drainage, although well understood, and its advantages appreciated by our agriculturists, has been applied but to a very limited extent in our country, owing to the great expense of forming the drain properly. Every improvement, therefore, which tends to lessen such an expense, whether it be in digging the drains or in the material to form them, is of immense advantage to our farming community. An improvement relating to the latter object stated, namely the tiles or material to form drains, has been made by Selah Hills, of Jersey City, who has taken measures to secure a patent. It consists in providing a suitable cylinder, in the mouth of which a piston furnished with a conical guide plug traverses, and forces the concrete mass of tempered clay (which is thrown into the cylinder) into suitable molds, ready to be dried and burned. Each mold has a core, an adjustable head rest, and adjusting screw, and a rotating knife cuts off the clay between the piston and the molds, into the proper length for each tile. The piston presser receives a reciprocating motion, and the machine can be worked either by hand, horse, or steam power. The rapidity of manufacture, and an improvement in the quality of the tiles, are the objects believed to be obtained by this improvement.

Machine for Dressing Fellies.

Machines for sawing and cutting fellies are not uncommon, but these machines merely cut out the fellies in the rough from the plank; after this they have to be dressed and finished, which operation requires more labor than the cutting out in the rough. To accomplish this in a superior manner, Charles W. Wyatt, of Newburg, N. Y., has invented an improved machine, which has a frame resting on a suitable bed-plate, and rotates horizontally around an adjustable axis, into which the felly to be dressed is placed and operated upon by vertical cutters as it rotates, in such a manner that the felly is rapidly dressed to any desired curve. Measures have been taken to secure a patent.

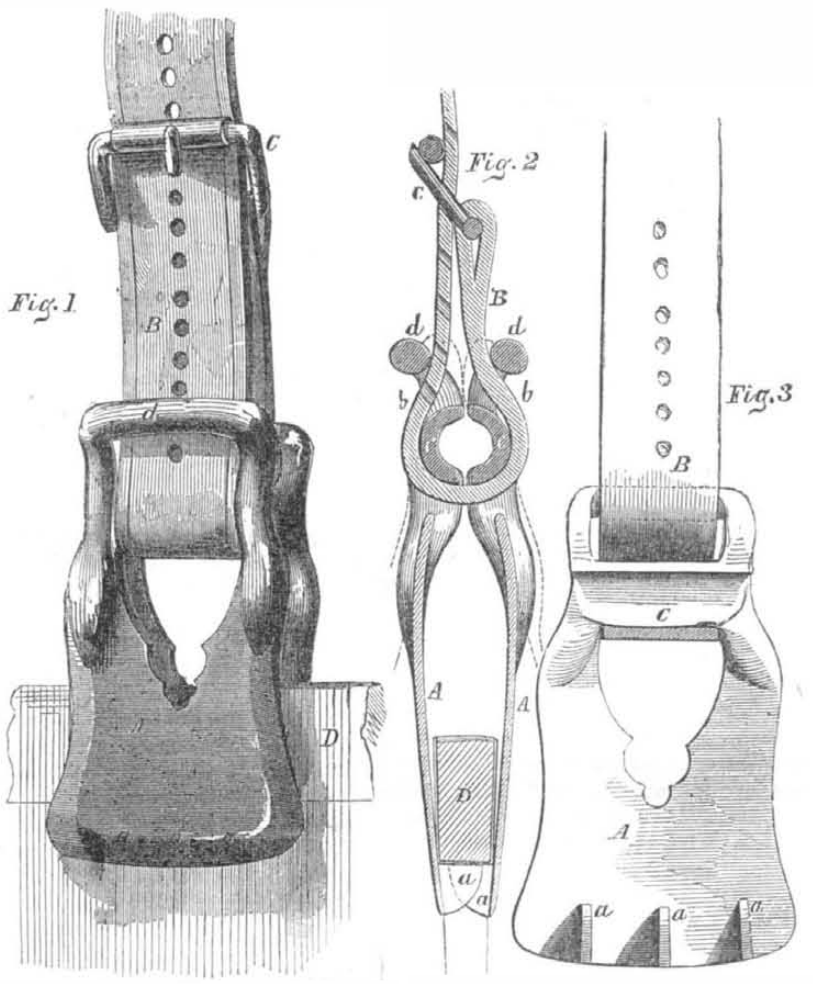
Weaver's Harness Clasp.

Figure 1 is a perspective view; figure 2 is a transverse vertical section, and figure 3 is an inside view of a new clasp for suspending weavers' harness, for which a patent was granted to George Copeland, on the 26th of last September.

The invention consists of two plates, which are placed one in front of the harness shaft, and the other behind it, and furnished with teeth or catches which pass between the heddles, on the under or inner side of the shaft, and are so suspended from the strap that its tension draws them towards each other, and causes the shaft to be confined between them. This clasp affords a cheap and most convenient mode of attaching the harness, and prevents injury to the shafts or heddles, and thereby renders the harness more durable than when attached to the straps in the old way.

A A are the plates forming the clasp, which are of cast iron, for the sake of cheapness, but which may be of other metal. They are both cast from the same pattern, having teeth or catches, *a a*, at one extremity, which are thin enough to pass between the heddles, and of a length about equal to the thickness of the harness shaft, and having two openings, *b b*, of sufficient size to allow the strap, B, to pass freely through, the holes, *b*, being far enough from the catches or teeth, *a a*, to leave room between them and the said catches or teeth to receive the harness shaft or heddle rail, D. The strap is looped at each side of the loop, passes through the hole *b*, of one plate, then outside the bar, C, which is left between the two openings, through the opening, *b*, and inside the bar, *d*, which forms the end of the plate. The loop is secured by a buckle, C, or other fastening, and the tension of the strap acts so as to draw the toothed ends of the plates towards each other. The two plates may be considered as levers of the first order with the bars, *c c*, as the fulcra and the power applied by the strap inside *d d*, or as levers of the third, order with *d d* as the fulcra, and the power applied outside *c c*. The teeth or catches, *a a*, are so placed that those of one plate are about opposite the centers of the spaces between those of the other plate. This clasp affords the greatest facility for attachment and detachment of the harness to and from the strap, as when the strap is slack, the plates hang free to be moved apart, as shown in dotted outline figure 2. Besides being cheaper than the hook and eye commonly used for attaching the shaft or rail to the strap, it allows the web to be adjusted sideways in the loom without boring holes in the shaft, while the eyes require new holes for every adjustment. The harness also is not crowded over to make room for the eye, and therefore not apt to cant the

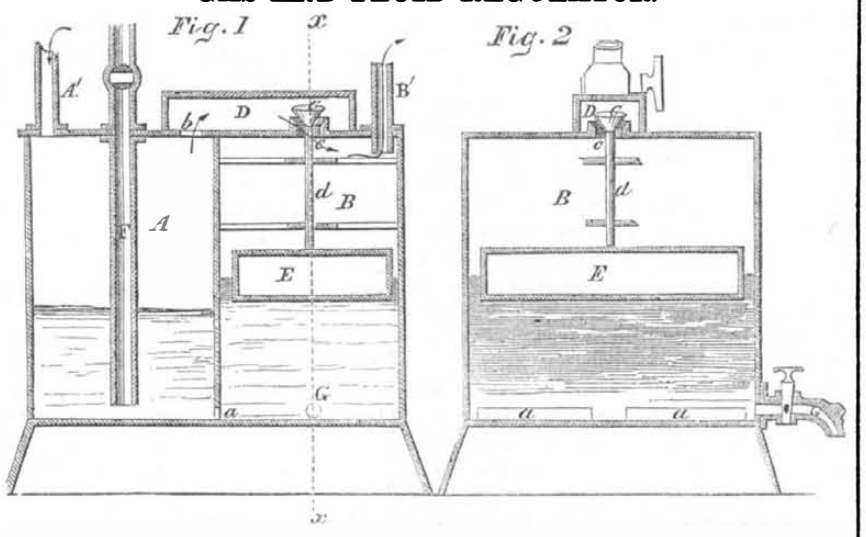
CLASP FOR WEAVERS' HARNESS.



heddles. It causes no injury to the shafts by the changing of the harness while the changing of the eye, which is often necessary, in order to make the web hang true, frequently renders the shaft unfit to be re-knitted upon. The tin band for holding the two sides of the loop together is dispensed with. The clasp can be applied to any part of the harness instantly. It is stronger and more secure, and it gives more room to buckle up, as it leaves a greater length of strap between the harness and the roll.

More information may be obtained by letter addressed to the inventor, Lewiston, Me.

GAS AND FLUID REGULATOR.



The annexed engravings are views of an improvement in apparatus for equalizing the flow of gases and fluids; figure 1 being a vertical section through the center of the regulator, and figure 2 a vertical section taken at right angles to figure 1 through the line, *x x*.

This invention is intended principally to regulate the consumption of a number of gas burners by causing the pressure on each that is lighted, to be uniform and uninfluenced by the number of others that are lighted, or by the pressure on the main. It is also adapted to regulate the flow of fluids at a given pressure, without regard to the quantity used, or any variation in the size of outlet, or on the pressure on the main or inlet. The invention consists in the employment of two chambers, placed side by side, and communicating with each other at the bottom through an open passage, and at the top by a passage which is opened and closed by a valve attached to a float which is placed in one of the chambers, to be acted upon by water, or the liquid contained in the lower parts of the chambers. The chamber containing the float is in communication with the outlet where the gas or fluid is consumed or discharged, and the other chamber receives the inlet pipe. The pressure of the gas or fluid on the surface of the water or liquid in the inlet chamber forces the water or liquid upwards in the outlet chamber, in which the pressure varies according to the number of burners lighted or the area of the outlet, and thus causes the water level to vary, and the float to give the valve a suitable amount of opening. The float and valve are also influenced by variations in the pressure in the inlet pipe, so as to contract the opening of the valve when the pressure increases, and vice versa.

A is the inlet chamber, and A', the inlet pipe; B is the outlet chamber, and B' the the outlet pipe. The two chambers consist of sheet metal with a single partition across the center, and narrow passages, *a a*, at the bottom of the said partition forming a free communication between the two chambers. In the top of the inlet chamber, A, there is an open passage, *b*, and in the outlet chamber, B, an opening, *c*, fitted with a conical valve, C, which opens upwards. The openings, *b* and *c*, are covered by a valve box, D, which forms a means of communication through them between one chamber and the other. E is the float which is attached to the valve by a rod, *d*; F is a pipe for supplying the regulator with water, and G is a cock for drawing off the water. The chambers are filled with water to such a hight that when the valve, C, is closed, as will be the case when the inlet is closed, the level will be at a short distance below the float which will be suspended by the valve. When the inlet and outlet are open, and the gas enters the chamber, A, it will force down the water in that chamber and up in the outlet chamber until it reaches and lifts the float, and opens the valve, C, to admit the gas to the outlet chamber, B, from which it passes off by the outlet pipe. It will be understood that the nearer the pressure in the chambers approaches to an equilibrium, the less will the level in the outlet chamber be raised, and vice versa. If some of the burners are shut off, and the gas escapes less freely from B, there is a tendency to restore the equilibrium between the chambers, and the level in the outlet chamber will be reduced, the float will descend, and the opening of the valve contracted, to reduce the supply of gas; but on the contrary, if more burners are turned on, the gas escapes more freely, and there is a greater tendency to destroy the equilibrium, causing the level to rise in the outlet chamber, and the float to ascend and give a greater opening to the valve, and thereby increase the supply. When the pressure in the main or inlet increases, the escape at the outlet is less free, and there is a tendency to restore the equilibrium between the chambers, causing the opening of the valve to be contracted; but when the pressure decreases, the tendency to restore the equilibrium is diminished, and the opening of the valve is increased. The pressure on the outlet may be varied by adding to or subtracting from the quantity of water in the regulator. If it is desired to increase the pressure, more water should be added, but if to diminish it, some should be drawn off. The explanation of the operation of the apparatus as a gas regulator serves to illustrate its operation as a regulator for other fluids or liquids. The liquid employed at the bottom of the chambers must always be of greater specific gravity than that whose flow is to be regulated. The apparatus will serve to regulate the pressure of steam for a steam engine, irrespective of the pressure in the boiler, and in that case the chambers should be supplied with mercury, in place of water, as represented.

A patent was granted for this improved apparatus to Thomas H. Dodge, of Nashua, N. H., on the 27th of last June, from whom more information may be obtained by letter.

Operating Slide Valves of Oscillating Engines.

An improvement has been made in the mode of operating slide valves for oscillating engines, by Marcus D. Dubois, of Newburg, N. Y., the nature of which consists in the employment of levers attached to a segment rack shaft, operating in connection with spring catches and movable slide stops. The slide valve is of the usual construction, and although employed on an oscillating engine by the arrangement of the devices named, it (the valve,) receives a reciprocating motion, and may have any proper 'lead' and 'throw' given to it. Measures have been taken to secure a patent.

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Scientific American.

NEW YORK, DECEMBER 16, 1854.

Reform of the Patent Laws.

On another page will be found the Report of Judge Mason—Commissioner of Patents—to which we invite the attention of inventors and all those who are interested in patents. It is therein stated that the business of the Patent Office is now in a most satisfactory condition, and that the Examiners will soon be able to examine applications as fast as they are presented, they having nearly made up all the arrearages of the past year—amounting to eight hundred and twenty-three cases. This has been accomplished by creating five new principal Examiners with assistants, thus making eleven Chief Examiners with an assistant to each, in the Patent Office. We thank the Commissioner in the name of the inventors of our country, for what he has accomplished in exterminating the unfinished business of the Office. The long delays which heretofore took place before decisions were made on applications for patents, wrought great injury to hundreds of worthy men, and operated adversely to the progress of invention and discovery. The Patent Office should always be in a condition to examine every application for a patent within ten days, at most, after it is made, and for the first time in the history of the Office since it was remodelled under the law of 1836, the present Commissioner will shortly have the honor of accomplishing this desirable result.

The great feature of the brief Report alluded to, however, is its recommendation of certain amendments to the patent law, or the passage of the bill framed by the Senate Committee of Patents, at the last session of Congress. The amendmends proposed are three in number, viz: First, new provisions for compelling witnesses to give testimony in cases pending in the Patent Office. Second, a reform in the method of trying appeals from the Commissioner; and lastly, some means to increase the revenues of the Patent Office. These reforms are no doubt required, but it is sometimes easier to repeal a bad law than provide a good substitute.—The Patent Bill referred to, we hope will not pass in its present form, and it would have afforded us sincere pleasure if the Commissioner, in his report, had pointed out its good and bad features, but we hope he will do so yet, to the Senate Committee, before it comes up again for discussion. We took occasion to review this Bill very fully on page 341, last volume SCIENTIFIC AMERICAN, and our remarks, we are happy to say, were received with such favor by the Committee of Patents in the Senate, as to lead them to engraft several of the amendments we suggested on the Bill—which in its amended state is now before us. It still, however, offers great room for improvement. Its fourth section provides that no money but that which is paid in by mistake can be withdrawn from the Patent Office; that is, no applicant for a patent, even when his claims are rejected, will have the privilege of withdrawing two thirds of the fee, as is now the case. This, we think, is decidedly wrong. It does not involve, we are positive, an expense of thirty dollars to the Patent Office, to examine and reject an application for a patent. The sixth and eighth sections of the Bill should both be stricken out; they are contradictory, and will lead to trouble if passed in their present shape. The sixth section says, "no patent for an invention to any other than an original inventor shall be granted for a longer term than seven years;" and the eighth section provides for the granting of patents for two terms, the first one for five, and the second for fifteen years on the payment of one hundred dollars. We like the present law much better than this proposed improvement. There are far too many complicated provisions in this Bill for increasing the revenues of the Patent Office. All of section fourteen in the new Bill, we think, should be stricken out; it embraces some very absurd propositions for raising the patent fees to a standard beyond that exacted by some of the most despotic governments of Europe; it is anti-democratic in its nature, and essentially despotic in its provisions. Thus in addition to a patent fee of twenty dollars for one claim, it provides for the charge of five dollars for every additional claim not exceeding three, and for more claims than three, ten dollars each. It also provides for a number of other petty means of increasing the revenue, all of them opposed to republican statesmanship, which should be distinguished by simplicity and moderation.

We could say a great deal more upon this subject, but we have said enough at present to direct the attention of the Senate to examine that Bill more attentively, in order that it may be pruned and purified of its defects.

An increase of the revenues of the Patent Office can be obtained, we think, more equitably and easily, by a simple addition to the present patent fee than by any other plan. Our plan is to let the law stand as it is at present, with the amendment of a charge of $20 when an application for a patent has been granted, that sum to be paid before the patent is issued. Let this plan be first tried for a year or two, and if it does not provide a sufficient revenue, then some other increase of fees can be added afterwards. It is stated in the Report that 1,900 patents will be granted this year, and we suppose that this number will be increased to 2,000 next year; our plan will provide an increased revenue of $40,000. This large additional sum, it appears to us, should be sufficient to meet all the extra expense of the Patent Office, without complicating and embarassing applicants for patents in the manner proposed in the new Bill.

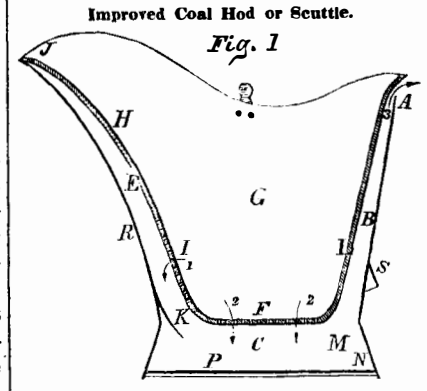
The Water in Boston.

The good people of Boston have been afflicted for some time with the offensive taste of their Cochituate water, and although the Water Board has had the subject under consideration, they have not yet been able to ascertain the cause. Dr. Jackson, of Boston, and Prof. Horsford, of Harvard College, have been appointed to analyze the water, but have not completed their investigations. The President of the Water Board—Thos. Wetmore—states, that so far as the investigation has proceeded, the impurities of the water are of a vegetable character entirely. This we suppose, is to quiet any apprehensions respecting the pollution of the water by the decay of animal matter in it. When the disagreeable taste was first discovered, the Board flooded and rinsed out all the water pipes in Boston, supposing that some local cause was at the root of the evil; this was found not to be the case, for the report says, that "some water taken thirty-nine feet from the surface of the lake, after twenty-four hours, became as offensive as any which had been met with in the city." It seems that the water after being allowed to remain in vessels for about ten days becomes pure and tasteless, an action taking place, no doubt, like that in water casks at sea, with the water taken from certain rivers like the Thames, which is nothing less than a fermentation, during which some impurities pass off as gas and others fall to the bottom of the vessel. It is believed by the Water Board that the rains which fell in September and October last, flowing over a large surface, washed many impure vegetable substances into the Lake, but it may turn out that the disagreeable taste in the water has been caused by minute *animalculæ*, some of which, when dead, have a wonderful power in polluting water.

A supply of pure water for cities is one of the first objects with regard to health and pleasure; it is just as necessary as good food. It is not merely a plentiful supply of water which is necessary, but a plentiful supply of *good* water. This the people of Boston have not had for some time. It is our opinion that all lake and river water for the supply of cities, should be filtered before it is distributed through the main pipes for general use. This can be easily done, at no great expense, by passing it through filtering beds of gravel, sand, and clay, all mixed together. If the people of Boston think that filtering their water is a too expensive process, they make a bad choice, for they may be subject to the same evil for a month or two every year, unless they apply a sure and certain remedy—that is filtration.

Improved Coal Hod or Scuttle.

Fig. 1



This figure is a vertical section of an improved coal hod, for which a patent was granted to William A. Martin, of Bristol, Rhode Island, on the 7th of last month. The object of this improved coal hod is to sift the coal and screen it from dirt by the ordinary motion to which the coal will be subjected in placing it in the hod, and in discharging it therefrom. This hod has a double bottom, and is also double at the front part leading to the spout, and the back part direct behind, but has single metallic sides. G is the inside of the hod or coal chamber. B is a passage formed between the inside bottom, F, and the outside one, P. and A is the opening for discharging the coal dust from the chamber, C, after it has been separated from the coal.—The inside bottom, is a plate of sheet metal (or wire gauze) perforated with a great number of small holes; these perforations are continued on the plate, I, in front, for a short distance up, and the coal dust is shown passing through these perforations by the arrows, 1 2 2. J is the spout, and H is the inside plate, continued from the false bottom upwards, forming a small enclosed chamber, E, in front. R is the outside shell in front. P is the outside bottom, and N is its rim or flange. L is the plate of metal running up behind to form the space or passage, B, to discharge the dust; the arrow, 3, shows how the dust is discharged. S is a small flange to grasp with the one hand for discharging the hod, by tipping it over, or for giving it any inclination to pour the coal into the fire. K is a partition attached to the inside of the outside shell, R, to prevent the dust in the receptacle, C, from passing into E, when coal is being discharged out of spout J.

It will readily be noticed how the dust of the coal must pass through the false bottom. F, when it is shovelled in, and any dust that remains will pass through the screening part, I, when the coal is being poured from the hod out of mouth, J. The manner in which the dust is discharged, and kept from re-entering the chamber, G, is also evident. This coal hod, while its general appearance is unchanged, combines the qualities of screen, dust receptacle, and hod. It is made of the same material as the common kind, and can be constructed for but a small additional expense, and such an expense, while it adds to the convenience of the article, renders it more strong and durable.

The claim for this improved coal hod is as follows, viz: "separating the main central chamber of a coal hod or bucket from the outer sides and bottom of the same by an interior lining of sheet metal and wire grating combined, in such a manner as to form a dust chamber between said lining and the exterior of the hod or bucket, open at the rear and closed in front, by which the coal will be discharged at the front side of the bucket, and the dust deposited in the dust chamber; and when the coal is all discharged from the bucket, the dust can be removed from its receptacle by movements the reverse of those required in discharging the coal from its receptacle, as set forth."

More information may be obtained by letter addressed to the patentee.

A Little Oil.

It is wonderful what virtue "a little oil" possesses. The iron horse galloping along on the railroad would soon become so stiff as to baffle the power of steam to drive him, were it not for "a little oil" occasionally supplied to his joints. How the old wagon shrieks and screams when its axles have not received their due supply of lubricating material, but how smoothly it rolls along when supplied with "a little oil."

In all factories where machine power is used, the value of "a little oil," is duly appreciated, and no advice is necessary to be given in those quarters. But it is different in domestic establishments; how very seldom are the hinges of doors and gates lubricated, and yet who can doubt that they would not only move smoother but endure much longer if they were more often supplied with "a little oil." The sluggard's gate has been depicted as one which "grates on its hinges;" were this a true test of such characters, we are afraid their number would be found a very large one, in every community. Thoughtlessness, however, respecting the value of "a little oil," is all that we can charge upon the majority of those who do not use it so often as they should. The hinges of every leaved table, every door, every gate, the bolts of locks, in short every hinge, whether it be of an article of furniture or any thing else, should receive "a little oil" occasionally. For domestic purposes, sweet oil is the best, because it is the most cleanly. A very small quantity can be supplied with a feather, so as not to soil or grease articles of clothing, or carpets. These hints are capable of extensive application, and will be so understood; we only hope they may be effectually acted upon.

One Hundred Dollars Reward.

A standing reward of one hundred dollars for the largest list of subscribers to the SCIENTIFIC AMERICAN, has been for some time past regularly announced in our columns.—Several other rewards, in sums varying from $100 down to $10, have been also set forth.

We would remind those interested, that the above rewards are payable on the first of January next; therefore all who propose to compete must be up and doing. The time is short, but it is long enough if competitors are active.

We presume there are few localities where there are not one or more worthy individuals to whom either of the sums above named would be an assistance in these severe times, but who are ignorant of the offer we make, or of the ease with which they can obtain the money.

If those of our readers who do not propose to compete for the prizes themselves, would be good enough to circulate information concerning them, and interest others in the matter, we have no doubt they could thus be the means of doing good to persons who are worthy of aid; while for ourselves we should consider it a personal favor. See prize list below.

During the past year there have been 11,070,935 acres of public lands surveyed, and 8,190,017 brought into the market.

$570 IN PRIZES.

The Publishers of the SCIENTIFIC AMERICAN offer the following Cash Prizes for the fourteen largest lists of subscribers sent in by the 1st of January, 1855.

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$55 for the 4th, $25 for the 10th,
$50 for the 5th, $20 for the 11th,
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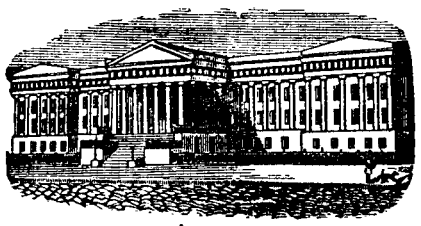

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING DECEMBER 5, 1854.

SEATS FOR PUBLIC BUILDINGS—A. H. Allen, of Boston, Mass. : I claim the seat, constructed, hung, and adjusted substantially as described, so as to assume and retain the vertical position, when not in use, whether by means of the weight or spring, or sliding back, connected and supported by means of the shafts, F, or by pins or other analogous devices for the connection and support of the seat, substantially as described.

OVEN FOR BAKING—G. S. Blodgett and P. T. Sweet, of Burlington, Vt. : We claim the use of galvanized iron in the construction of ovens, for the purpose of cooking or baking meats and other articles in combination with this form and kind of furnace, substantially in the manner and for the purpose described.

STEAM BOILER ALARM—Patrick Clark, of Rahway, N.J.: I claim, first, the arrangement of the wheel, R, turning on the screw of the tube, C, with its rods, S S, and cap, o, or any equivalent device, when actuated by the spring, Y, or its equivalent, in relation to the valve stem, F, and valve, E, and the tube, C, by means of which the arrangement adjusts itself to the varying length of the tube, C, as it contracts in cooling, after having given an alarm, or after having been used as an ordinary gauge cock.

Second, I claim the arrangement of the bell, H, and disk, G, on the valve stem of the valve of the whistle, when and only when such arrangement is used in combination with the arrangement of the first chain for the purpose set forth.

REEFING TOP SAILS—H. J. Crandall, of East Boston, Mass. : I claim the arrangement of the rod with the leaders on the under side of the yard, and the manner of reeving the reef lines, and pennants attached to the close reef through the leaders connected with the other reefs, and the connecting the reef points with the leaders for the reef lines on the after side of the rail, and the peculiar arrangement together of the aforementioned parts.

STEERING APPARATUS—J. D. Crowell, of Boston, Mass. I claim the manner in which I have combined or arranged the operative parts of the said steering apparatus, the rudder head and the tiller, the bearings of the steering wheel being supported directly on the upper end of the rudder, and that of the tiller, while the curved rack is elevated above the deck and to or about to the level with the top of the rudder head and tiller, such not only enabling a single pinion and rack to be used in connection with the steering wheel shaft sustained as specified, but rendering the whole apparatus simple and efficient in operation, and very cheap in point of construction, and little liable to get out of repair.

ROTARY PUMP.—Joshua Gray, of Boston, Mass. : I claim the combination of the two flat cones, A B, and the flexible diaphragm, or partition, H, applied together, and in a case provided with ingress and egress pipes or orifices, such cones being arranged in contact, and with their axes at an angle to each other, and the whole being made to operate together and for the purpose essentially as explained.

RAILROAD CAR SEATS—J. T. Hammitt, of Philadelphia, Pa. : I claim in the described seat, first, placing the legs or wheels, or the wheels in the legs, in such a position in relation to the pivot on which the seat revolves, that as the seat is turned they, the legs or wheels, shall not run into or across any sockets except those in which it is intended they shall stop, substantially as described.

Secondly, placing the pivot near the front edge of the seat so that it may be made longer and turned without coming in contact with the side of the car, substantially as described, thereby permitting the seat to be made longer and arranged to turn in a car of a given width, without reducing the width of the avenue or space between the ends of the seats.

RAILROAD SWITCHES—S. P. Kittle, of Buffalo, N. Y. : I am aware that many devices have been essayed for moving railroad switches by means of the locomotive or cars in passing over the track. I do not claim any of these independent of the effect which I attain by my special means.

But I claim the moving of the switch by the passing train through the intervention of a slotted cam which will move, and then hold or lock the switch to either rail against the lateral pressure, without the use of any other device than the slot pin and pivot, these being arranged substantially as described.

MACHINERY FOR SEPARATING THE FIBER FROM THE WOODY PORTION OF TROPICAL PLANTS—John Lilley, of Birkenhead, Eng. Patented in England, July 21, 1853 : I claim the combination of the yielding knives or scrapers with the rollers, when said knives or scrapers are hung on a toggle joint and operated by cams, a, and thrown out of or into action with said cams, by weighted levers first to receive the material, and then to divest it of the refuse matter, substantially as described.

MACHINE FOR ROUNDING THE BACKS OF BOOKS—L. F. Markham, of Cambridgeport, Mass. : I claim, first, the combination of a presser bar hung upon proper journals with a yielding table upon which the book is placed, the back of the book being shaped by the action of the said presser bar and table, as set forth.

I also claim a presser bar hung upon sliding journals, and actuated by the friction rollers and curved guides, so as to give a forward motion to the said presser bar, and thereby adapt the machine to rounding the backs of thick books, as described.

PAPER MAKING MACHINES—Obadiah Marland, of Boston, Mass. Patented in England Sept. 28, 1854 : What I claim in cylinder paper machines, when the cylinder mold revolves within the vat, and is partially immersed in the pulp, is vibrating the revolving cylinder mold, and the parts immediately connected therewith, as set forth and for the purpose described.

PAPER MAKING MACHINES—Obadiah Marland, of Boston, Mass. Patented in England, Sept. 28, 1854 : I claim producing within the vat of a cylinder paper making machine, currents and counter currents of the pulp, parallel or nearly so to the axis of the cylinder. by the use of spiral conveyors operating within the partitioned shell, H, or by means of their mechanical equivalents, as described.

WASHSTANDS—W. H. Miller, of Brandenburg, Ky. : I make no claim to any of the parts composing my washstand separately.

But I claim a washstand made in sections, and having its parts constructed so as to form a clean water reservoir, a waster reservoir to receive the waste water from the basin rim, basin, and table top, substantially in the manner and for the purpose set forth.

MILL FOR SHELLING AND GRINDING CORN—H. R. Miller, of Louisville, Ky.: I do not claim, irrespective of their specified form and arrangement, the concave or recesses in the one stone, with a draught boulder, and acting in concert with a revolving recess or side eye ; nor yet a shelving back or bosom to the said eye of the runner, irrespective of its specified form and arrangement for operation, together with the concaves, nor any other of the parts described, which are old and have been used for operating upon ear corn when fed in, one ear at a time.

But I claim the construction and arrangement shown and described, of the circumscribed or inclosed concaves, N, having their draught shoulders, S, of equal depth, or thereabouts, and made with an abrupt stop at their outer corner by the junction of the outer boundary line of the concave with the shoulder, S, when combined and operating together with the adjusting bosom, M, in the other stone, and extending, as specified, to cover or act over the whole surface of the concave, whereby the ears of corn fed into between the stones promiscuously and several at a time are prevented from passing out of the concave otherwise than over the draught shoulder, S, and are gradually turned, borne, or pressed by the bosom, M, against the draught shoulder to an equal extent of contact therewith, throughout their length, for the better adjustment of the several ears into a proper cross-wise position for shelling and travel between the inner furrowed surfaces of the stone, as set forth.

MACHINE FOR CRUSHING ORES—Wm. H. Plumb, of New York City : I claim the rollers upon the radial arms of the shaft connected with the movable arms or their equivalent, and revolving in a basin whose inner surface is eccentric to the roller's shaft, arranged and operating substantially in the manner and for the purpose set forth.

STEAM BOILERS—J. A. Roebling, of Trenton, N. J. : I claim the arrangement of the extended grate surface, elaborating or central combustion chamber, c c, the tube sheets, v and t, and the tubular water surface between the said sheets, substantially as set forth.

RAILROAD CAR BRAKES—Michael Shimer, of Uniontownship, Pa. : I am aware that the use of a shoe made of iron or other materials, and pressed down upon the rail by the weight of the car, is a well known device for checking the speed of a train of cars. I make no claim to such shoe in or of itself, but I believe this species of brake has thus far proved unsatisfactory on account of the violent concussions which have resulted in consequence of the defective mode in which they were constructed. I profess to have discovered the remedy for this difficulty, and now ask a patent only for the special contrivances by which this is effected.

I claim the inclined curved bar, g, and elliptical spring, c, in combination with the elastic chain, g, and the slotted bar, B, for the purpose of preventing a concussion when the car wheel strikez the curved bar, G, and spring, c, and also for the purpose of preventing the shoe, A, from being broken.

DRY DOCKS—J. E. Simpson, of East Boston, Mass. : I do not claim constructing a coffer dam by driving double rows of piles, and filling the interspace with clay.

But I claim the method described of constructing dry docks by making use of the natural stratum of clay for the floor of the dock, and continuing the same up through the walls by means of puddling. in the manner set forth, the front of the dock being furnished with gates for the admission of the vessel, as described.

CASTING METAL WINDOW SASHES—T. J. Sloan, of New York City : I claim molding and casting metallic window sashes with auxiliary bars, substantially as specified, to keep the rails straight during the contraction of the metal in cooling and then to be cut or broken out, as set forth.

RUNNING GEAR FOR RAILROAD CARS—D. G. Smith, of Carboudale, Pa. : I claim a six-wheeled truck, having on that end of it next the end of the car, a pair of wheels, C', with semi-conical treads and no flanges, as represented, and united to the truck frame, which is also supported on two other pairs of wheels of the ordinary construction by the supporting plate, D, king bolt, F F', and connecting rods, I I, so that said pair of wheels, C', may have a lateral motion on the rails, independent of the other pairs, and yet support their due proportion of the weight of the car, substantially in the manner and for the purpose described.

MANUFACTURE OF BRUSHES—Mathew Stewart, of Philadelphia, Pa. : I do not claim the use of conical or bell-shaped tubes for binding the knots of bristles, and leaving room for the expansion of the roots of the bristles in the enlarged end of the tubes, such conical or enlarged tubes so used, not being new.

I claim the use, in combination therewith, of a wire for binding the knot of bristles before their insertion, the said wire being supported or held by coming in contact with the sides of the tubes, or suitable projections thereon, as described.

EXTINGUISHING FIRE IN INACCESSIBLE PLACES—Amasa Stone, of the County of Philadelphia. Pa. : I do not desire to limit myself to the precise mode of oscillating or rotating the apparatus described, by valves, and re-acting arms, or to any particular shaped reservoir.

But I claim, first, the arrangement of the rotating or oscillating reservoir furnished with the jets, J J' J'' J''', connected with exterior water pipes, and operating so as to diffuse jets or streams of water in the manner and for the purpose substantially as described.

Second, the peculiar combination of re-acting arms, valve and reservoir described, by which, in one modification of my apparatus, the desired rotation or oscillation is effected.

REGULATING THE FURNACE OF HOT WATER APPARATUS—T. T. Tasker, of Philadelphia, Pa. : I do not claim operating dampers, valves, or such like things through rods connected with floats.

But I claim the arrangement of the two sets of floats operating the valves, M O, and damper, P, and the open vessel, F, in combination with a circulating hot water apparatus, as set forth.

COVERING COTTON THREAD WITH WOOL—James Taylor, of Newark, N. J. : I claim the employment of the rubbing rollers, q q' r r' s s' t t', in combination with the arrangement of mechanism described, for uniting the bands of wood around the cotton thread, substantially as set forth.

LANTERNS—Wm. D. Titus, of Brooklyn, N. Y. : I am aware that apertures in lanterns for introducing the lighter have been before used, to which sliding and swinging covers have been applied, and to such devices I make no claim.

But I claim the combination with the lantern case, of the slotted cover, D, which is so arranged as to fall by its own gravity, and fit upon the match holder during the operation of lighting the lamp, in the manner and for the purposes set forth.

HYDRAULIC RAM—Ellis Webb, of Parkersville. Pa. : I claim, first, the valve composed of a hollow cylinder having its upper end open, and its lower end closed, and extending up above the water and packing line, so that in rising it will rise against the air instead of the column of water within the air chamber, substantially as described.

I also claim the method described of introducing the oleagenous packing, or its equivalent, on top of the water in the air chamber, for the purpose of preventing the water from taking up and carrying out with it the air which should be continued therein, as described.

I also claim, in combination with the rising main or discharge pipe, the check valve for preventing any re-action in said pipe, from extending back into and endangering any of the operating parts of the machine.

CHURNS—E. Webber, of Gardiner, Me. : I claim the combination of the flanged inverted conical dasher, D, with the inverted conical cream chamber, A, arranged and operating as described for the purposes set forth.

GRAIN AND GRASS HARVESTERS—Cyrenus Wheeler, Jr., of Poplar Ridge, N. Y. : I do not claim the driving wheel, face wheel. or pinions, the boxes or shaft of the same ; neither do I claim the connecting rod of two parts, or the driving bar ; nor claim the double edged movable pivoted cutters or shears, as pivoted in the center. and placed on the top of the stationary or fixed ones, or the cutter bar, as heretofore constructed by others. Neither do I claim the seat for the driver or the table for receiving the grain. I do not claim the castor wheel, as such alone.

But I claim hanging the cutter bar, h h, provided for the purpose, with a socket, z, to one extremity of the arched bar, w, by means of joints, a a, and segments, b b, c c, said arched bar being in its turn pivoted in x, to the main frame, a a, all for the purpose of giving the cutter bar, h h, by means of levers, y, d d, and g g, a motion independent of the frame, and both rotating longitudinally parallel to the ground, and oscillating radially from the joints, a a, in order to adapt the same to the inequalities of the ground, or to stop its action at pleasure, as described.

DRY GAS METERS—Franklin Darracott, (assignor to Geo. Darracott,) of Boston, Mass. : I claim the use of measuring chambers arranged in pairs, as described, and similarly enclosed by means of the flexible leather secured to the stationary and movable diaphragms. the latter being placed between the chambers, and forming one side of each of them, and connected to the parts which they are to actuate by means of attachments to their peripheries, as set forth.

Second, I do not claim the method employed of giving motion to the valve, nor the system of arms, levers, &c., by which it is rotated, nor any arrangement or combination of such devices for effecting the purpose.

But I claim, in combination with the measuring chambers of a dry gas meter the described rotating valve with its inlet and outlet passages constructed and operating in the manner set forth.

Third, I claim opening a communication between the space which surrounds the measuring chambers and the inlet pipe, when the registering takes place only from the gas within the chambers, whereby an equal and uniform pressure exists at all times upon both sides of the leather which unites the diaphragms, and all loss of gas by transmission through its pores is avoided.

KNITTING MACHINES—John Pepper, Jr., of Portsmouth, N. H., (assignor to the Franklin Mills, of Franklin, N. H.) : I claim combining an annular series of hooked needles, and a series of radial and sliding hooked needles, so as to operate together, and with a rotary toothed wheel or sinker, and two rotary presser wheels, and produce ribbed work substantially, as specified.

I also claim the improvement of making a part of the cam or lip of the cam plate adjustable, substantially in the manner and for the purpose of removing a needle of the second series from the rest when necessary or desirable, as specified.

And I claim the arrangement of the second series of needles with respect to the other or first series, that is to say, so arranging them that their plane shall cut that of the upper ends of the needles of the first set and dip below and rise above the same, as stated, such an arrangement causing the stitches of the first set of needles to be elevated and cast off or over the loops or yarn of the second set, by the lifting power or action of the second series during its rotary movement, as specified.

LUBRICATING APPARATUS—Joshua Register (assignor to E. Clampitt & J. Register,) of Baltimore, Md. : I claim the combination of the reservoir for containing the oil or lubricating fluid with the central conical stem or spindle by means of two sockets or bearings, one of which is at the upper and the other at the lower or bottom part of the reservoir, in which sockets there are passages corresponding with other passages or vents in the bearings of the central stem, which top and bottom passages are alternately opened and shut by the moving of the reservoir around the central stem, in the manner and for the purpose substantially as described.

QUARTZ CRUSHER—J. W. Cochran, of New York City.—Patented in England, Nov. 21, 1853 : First, I claim the movable dies or bushings, either with or without the india rubber or other elastic interlining or cushion, in combination with the revolving disk or plate and balls or shells, substantially as described.

Second, I claim the manner of arranging and stretching the wire gauze or screen in pannels, and securing them to the standards, so as to give a uniform surface to the inner surface of the screen.

Third, I claim the connecting shaft for coupling the driving shaft with the revolving plate or disk, admitting the revolving plate or disk to vibrate laterally or vertically without effecting the driving shaft or its bearings, combined and operating substantially as described.

DESIGN.

STOVES—Joseph Stewart, (assignor to Cresson Stuart,) of Baltimore, Md.

Annual Report of the Commissioner of Patents.

PATENT OFFICE, Wednesday, Nov. 1, 1854.

SIR :—I have the honor to report to you that the business of the Patent Office is now in a more satisfactory condition than at any previous period since my connection with it.

The number of causes undisposed of in the office on the first day of January last, was reported to be five hundred and eighty-two. That number, however, was ascertained through an erroneous method of computation. By an actual count, the number of cases on hand at the time was ascertained to be eight hundred and twenty-three. A correct mode of computation was then introduced. so that the exact condition of the business of the office can hereafter be readily calculated from the monthly reports.

The arrearage in the business of the office, though much less than it had been six months previous, was such that several months always elapsed after the making of an application before it could be disposed of, which was a source of great dissatisfaction to all applicants for patents.

During the first three months of the present year the increase in the business of the office was such, that no sensible diminution in the arrearages was effected. In order to accomplish so desirable an object, it was deemed expedient to place several of the assistant examiners in the performance of the duties of principal examiners. In that manner the end sought is now almost, and will soon be entirely attained.

Instead of six principal examiners, each with two assistants, we have since the 1st of April had practically eleven principal examiners, each with one assistant. Most of the rooms are now entirely filled up with their work, and all will probably be so by the first day of December next. We have already, since the 1st of January last, issued upwards of sixteen hundred patents, and within the year the number will probably reach nineteen hundred, which will be about double the number patented last year. Applications are generally acted upon within a few days after they are made, and I have no doubt that the arrangement by which this result has been produced was judicious, and has proved satisfactory to the parties interested. I think it should be continued as the only method of disposing of the increasing business of the office with the proper promptitude and dispatch.

About one year since I had the honor to invite your attention to the importance of several proposed amendments to the patent laws. The reasons then given for the alterations suggested remain in full force now, and the recommendations then made are now repeated.

The amendments of most immediate and pressing necessity are those making provision for taking testimony—those in relation to appeals, and those prescribing a new rate of fees.

Many questions of great moment are frequently pending before the Patent Office, depending for a correct decision upon the testimony of witnesses, and there is no power provided to compel a witness to give testimony. Nothing is more common than for a witness to refuse to attend an examination, or to refuse to give testimony after he has attended, to the great perversion of the ends of justice and the object of the patent law.

The law now allows any person who appeals from the decision of the Commissioner to select which of the three Judges of the Circuit Court he chooses before whom to bring the appeal. The Chief Justice of that Court will probably never be able to entertain an appeal, so that bringing an appeal before him is tantamount to its postponement during the term of his natural life, and even after his death there may be some question as to whether the delay will be at an end. By an abuse of this law a case has been suspended in this manner for near two years, and is threatened with indefinite postponement, to the great detriment of the party who is probably entitled to the patent.

The rate of fees was fixed at a time when the real value of money was much greater in proportion to its nominal value than at present. The pay of the clerks and laborers employed in the office has been very much increased by Congress, and in various other ways the expenses of the office have been considerably augmented, while the fees have remained unchanged. In addition to these causes the force of the office has been considerably increased during the present year, in order to dispose of the accumulation of business above referred to.

The consequence of all these causes has been, that during the current year the expenses of the office have been continually exceeding the revenues, and such will continue to be the case until an augmentation of these revenues shall be provided for.

The permanent augmentation of the examining corps, or rather such a re-organization as will place all its members on a proper footing, is a subject worthy of consideration. The assistant examiners who are performing the duties of principal examiners, may justly expect, at no distant day, the compensation attached to those duties and responsibilities. It would not only be highly gratifying to me, but would be nothing more than justice to them to have the means and the authority to make their compensation commensurate with the grade and character of their actual services.

A bill was framed by the Senate Committee at the last Session of Congress, providing for these and many other amendments, or rather, it amounted to a general reorganization of the whole Patent Office system, including the above named provisions as a portion thereof. The passage of that bill, or of some other which shall at least embrace the features above alluded to, seems to be an object of prime importance to the proper administration of the affairs of this office.

I beg leave to commend these matters to your favorable consideration, in case you deem them of sufficient consequence to merit a place in your annual report.

I remain, sir, very respectfully, yours, &c.,

CHAS. MASON.

Hon. ROBERT MCCLELLAND, Sec'y of the Interior.

Valuable Discovery.

A mine of block tin has been discovered in Upshur county, Va., yielding, it is said, 80 per cent. of pure ore. It has been purchased by three gentlemen, who will immediately commence mining operations.—[Rockingham (Va.) Advertiser.

[We hope the above is true, but we are afraid that the news is too good to prove correct.

The wild ducks and geese of California are easily tamed. A gentleman in Monterey has four black geese, taken when young, and have now become as tame as common domestic geese. They are doing remarkably well. A pair of beautiful wild ducks have been tamed in the same way.—[Ex.

A new hall, in connection with the Pacific Mills in Lowell, capable of seating seven or eight hundred persons, was dedicated on Tuesday last, to purely intellectual purposes and chaste recreation. This is a pleasant and praiseworthy feature in the economy of cotton mills.

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TO CORRESPONDENTS.

S. C., of Va.—Your improvement in valve motion is very different from any thing we have ever seen for the purpose, and we think you are warranted in making application for Letters Patent. Send us a model and the patent fee, which is $30.

G. C. G., of N. H.—Iron and steel may be united with common solder, the parts being first dipped in a bath of chlorate of zinc; spelter, or almost any of the soldering or brazing compositions will auswer. Such unions, however, are not very strong. Welding is the most durable process.

T. N., of Mass.,—Your plan of securing the handles of axes and hammers is not new: it has long been used.

J. R. G., of Ohio—Your $20 can be applied on the new case. Fine varnish for maps is made by dissolving Canada balsam in turpentine.

C. J. B., of N. H.—We think a patent could be had on your vise combination. The arrangement for stopping runaway horses, which you describe, is new to us.

H. J. S., of Wis.—You will find the same kind of propeller described in Vol. 5 of the Sci. Am. It may be serviceable for the shallow water of your stream, but it is not patentable.

W. A. S., of Ill.—Milk and butter are often placed in wells by farmers, for the purpose of keeping them fresh and cool. If you have any new idevice, perhaps it can be patented. But the idea of using the well as a refrigerator could not be secured.

B. J. L., of Mich.—The office *may* make objection if your model is over twelve inches in one of its dimensions; if you *can* keep it within that measure do so; if not it will doubtless be received.

Dr. N., of Pa.—We cannot teli whether the gate apparatus is patentable or not without a more full description. You will be credited with the subscribers you procure and a premium awarded if you obtain the right number between now and January 1st. With all names sent please state that you are competing for a prize.

L. K. W., of Ct.—Adjusting plane irons by thumb screw is not new, and we think could not be patented. The plan has long been known and used.

W. S. S., of Va.—The rule of Feb. 20 says that the model must not be more than one foot in length or hight, except when a larger model is permitted for special reasons to be shown by the inventor.

B. P., of N. H.—If you will examine page 70, Vol. 7, Sci. Am., you will perceive that Mr. Robbins has obtained a patent for the use of rosin oil in paint. Sal soda, we know, is much cheaper than any other alkali, but a patent would not be granted because of its cheapness. It is made from common salt, as you state; it is a different article from pearlash, but it performs the same office, of this you may rest assured. It has been used from time immemorial with pearlash, to dissolve olive oil in making soap, and also in making the liquors of Turkey red dye. Potash and soda ash are both alkalies, and are oxyds of the two metals, sodium and potassium. They are called alkalies from their peculiar qualities. It is finable to use the word "patent" on any unpatented article: the fine is $100 for each offence; to use the term "copyright secured" is also finable.

J. G. H., of Fla.—Your plans for regulating the temperature of apartments are both very good, so far as the principles are concerned. but you have been long since anticipated. Your mechanical arrangements are new; the glass and copper device is ingenious, and we see nothing to prevent its successful operation. As you seem to have a philosophical turn of mind, we would suggest, as a problem never solved, the construction of an instrument which will exhibit the purity and impurity of the atmosphere. Such a contrivance would bring people to a realizing sense of the great deficiency in ventilation of buildings and apartments which now prevails.

W. J. W., of Ga.—If your machine will work well there is no question but it will pay to secure it by patent. It will cost, in all, $55 to secure the grant. Send a working model not over 12 inches in dimension, to this office, and at the same time remit $30.

J. A. M., of Mo.—No. 1 of your plans, we think, is patentable. No. 2, we fear, cannot be patented. The combination of parts in No. 3 we regard as patentable. All are highly useful inventions, and it would seem as if the patents would be worth something. If not convenient to apply for grants on all at once, then secure them one by one according as circumstances will permit. Models are always required. We shall need more full descriptions showing all the advantages of each plan in case you conclude to proceed.

J. P., of Cal.—We fear your method of molding bricks is not patentable: none of your claims are, in our opinion, tenable. No new process, mechanical or chemical, is evolved. 1st, your method of using the water is not new; 2nd, said method, in combination with any other brick-making process could not be patented; 3d, molding on edge is not new; 4th, molding refuse mined matter is no more patentable than would be the molding of any other kind of earth; 5th, pressing in the way you mention is not patentable. Don't be discouraged, however, keep on inventing, and you will hit the nail on the head one of these days.

R. W., of Pa.—We do not know of any sewing machine which makes stitches like a saddler, with a double wax thread. We understand your questions respecting the cone pulleys,—they seem to be asked merely to gratify curiosity.

W. G., of Pa.—Your wheel has a very good velocity; do not be disturbed about gaining more power by reducing its velocity to three feet instead of five and a half.

P. S. J., of Balt.—J. W. Cochran, of this city, is the inventor of the fire-arm you describe; Wendell Wright, of New York, has an improvement wherein the same kind of chambers are used; it is also embraced in several other inventions which relate to fire arms.

W. W. S., of Iowa—We know of no chimney top which will answer the purpose you name, aud yet preserve architectural beauty.

C. H. B., of Tenn.—Your plan for a printing press reflects credit upon your genius as an inventor. But you have been anticipated; the device is old and you could not get a patent; it has been tried but never made to operate well; we could put our hands on the remnants of such a machine in this city; it has also been tried in London. If you desire to obtain a temporary relief in your finances, perhaps you could carry off one of our prizes. Read the article in our paper of week before last, "A windfall for some one."

A. P., of N. Y.—Daniel Dodge, of Keeseville, N. Y., is the patentee of machinery for making the nails you speak of. There are also other patents. Cannot inform you as to pending applications.

I. J. W. A., of Md.—An engraving will cost $15.

G. A. G., of R. I.—We regard your trap as patentable.

E. F., of Miss.—$5 received; all right. Mr. B. has paid us $10 more. It will be necessary for you to send your Letters Patent in order that we may make drawings, &c.

Marcus DuBois, and Lewis Hover, will please call at this Office and attend to some business connected with their applications. The paper cannot be sent to the Patent Office until the matter is attended to.

W. B. O., of N. Y.—Leather horse collars constructed without a seam is a new idea to us. You are advised to send us a model of your apparatus for making them, and a specimen of the collar, and we can then give you better advice.

G. H. W., of Wis.—We will hand your letter over to some lithographer for attention. We cannot furnish the information you desire.

L. M. P., of ——Your suggestion about a cooking stove combining the quality of a hot-air furnace, has been carried out into practice; plenty of such stoves are for sale in this city.

Money received on account of Patent Office business for he week ending Saturday, Dec. 9:—

W. & S., of O., $25; J. H., and others, of Vt., $25; P. L. W., of Pa., $30; F. B. H., & Co., of Ind., $10; D. N., of Mass., $150; L. M., of Wis., $30; L. K., of N. Y., $25; P. & P., of Ct., $25; C. L., of N. Y., $50; A. B. B., of N. Y., $55; F. S. S., of Ct., $45; E. P. B., of Ct., $25; S. D. W., of Mass., $25; G. P. K., of Ind., $25; J. H. S., of Pa., $55; S. T., of Ind., $70; W. H. H., of Mass., $25; S. S. M. & Co., of Ct., $30; N. P. B., of Mass., $25; S. H., of N. Y., $55; C. G. E., of N. Y., $30; H. E. R., of N. J., $50.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Dec. 9:—

W. & S., of O.; J. H., and others, of Vt.; H. E. R., of N. J., 2 cases; L. K., of N. Y.; P. & P., of Ct.; W. H. H., of Mass.; G. P. K., of Ind.; E. P. B., of Ct.; S. D. W., of Mass.; T. S., of N. J.; J. B., of Ill.; N. P. B., of Mass.

☞ We are able to furnish all the back numbers of the present volume of the Scientific American, and to new subscribers we shall continue to send the back numbers as long as we have them, so as to render their volumes complete.

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THE PHILADELPHIA SATURDAY EVENING POST—Established August 4th, 1821. The long period of over thirty-three years, during which the POST has been established, and its present immense circulation. are guarantees to all who may subscribe to it that they will receive a full return for their money. During the coming year its ample columns will be enriched by Orizinal Novelets, Sketches, Letters, &c., by Mrs. Southworth, Grace, Greenwood. Fanny Fern, Mrs. Denison, Eliza L. Sproat, Mary Irving, and other eminent writers: together with Agricultural Articles, General News, Engravings, Miscellaneous Matter, Humorous Sketches, Foreign Letters, &c., our object being to give a Complete Record, as far as our limits will admit, of the Great World. Terms (cash in advance): single copy, per annum, $2; 4 copies, $5; 9 copies, $10; 14 copies $15; 21 copies, $20. Address (post paid) DEACON & PETERSON, No. 66 South Third street, Philadelphia. Sample numbers sent gratis when requested. 1

TWO CORN DEALERS—The subscriber would invite attention to his improved Grain Drier, which is capable of curing grain and such like substances, wet and otherwise, in a manner which cannot fail to convince those who will call and examine it. The merits of this machine consist of drying grain without burning, or changing taste or color: it is also suitable for ship bread or cracker bakers: it can be speeded either fast or slow, to suit the condition of the above substances with the greatest accuracy. For further information inquire of J. Massey, at the Union Steam Works, corner of 22nd street and 2nd avenue, second floor, either by letter, post-paid, or otherwise, who is now prepared to dispose of the said machine by single rights or otherwise. The machine can be seen at the above place, where all information required will be given. JOHN MASSEY, inventor and proprietor.

N. B.—All persons are cautioned against infringing on the above patent. 1*

TO CAPITALISTS—The undersigned having recently taken measures to secure a patent for a new and most valuable invention, is willing to sell assignments for the foreign patents, which will benefit purchasers, if successful, many thousands of dollars. With good sureties, payment may be deferred until the issue of the American patent. To insure success, the title, (which has not been published,) should soon be enrolled in the foreign offices. Applicants naming their price, on condition that the model pleases for the above will receive attention. Apply to GEO. B. CLARKE, Leonardsville, N. Y. 1*

THE ARTISAN JOURNAL—A Monthly Record of the Process of Civil and Mechanical Engineering, Steam Navigation. Shipbuilding, and the Industrial Arts, Chemistry, &c. Published in London, and for sale in numbers and volumes by CHAS. H. HASWELL, Consulting and Superintending Engineer, Bowling Green, New York. Drawings and specifications of Steam Machinery, in all its branches, furnished upon application. 14 1amtf

THOMPSON'S IMPROVED ODOMETER—The subscriber is now ready to disp se of territorial rights to manufacture and sell the above instrument. They can be applied to any carriage in twenty minutes, and will not fail to indicate the exact distance the carriage travels. Address the inventor, JULIUS THOMPSON, Middleboro', Mass. 1*

IRVING'S PATENT SAFETY CIRCULATING STEAM BOILER.—Testimonials—"I certainly would not exchange it for any boiler I have ever seen or used."—W. Burtt, Esq., Kal., Mich.

"It is the most economical boiler and produces more steam of a better quality than any I have ever used."—A. Low, Esq., Frankl in Foundry, Albany, N. Y.

"I am well pleased with the principle of this boiler, and believe it to be the best in use."—L. E. Webb, Esq., Guilford, Conn.

"We find evaporation per 1 lb. of coal to be equal to 13·003 lbs. water."—Rep. Messrs. Ehman & Cook, Engineers.

Orders for Boilers promptly filled. Descriptive circulars obtained on application at the Company's office. Rights negotiated for the United States, England, France, and Belgium. W. F. PHELPS, Sec.'y Irving Boiler Co. 347 Broadway. 10 6eow*

MATHEMATICAL AND OPTICAL INSTRUMENTS—The undersigned has just opened a new and extensive assortment of the above Instruments, his own selection made in Europe. It should also be kept in mind that he has the exclusive agency for the sale of the justly celebrated Swiss Drawing Instruments. Transits, Levels, and Surveyors Compasses made to order.

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8 6eow* 211 Chesnut st., Philadelphia, Pa.

MACHINIST'S TOOLS—Now finished, two Engine Lathes, 9½ feet bed, 18 inches swing; one do. with screw cutting apparatus; also, one 7½ feet bed, 18 inch swing; and two do. with screw, from new and improved patterns and of superior workmanship, by C. S. TOLMAN & CO., Fitchburg, Mass. 3 6eow*

UNITED STATES PATENT OFFICE,
Washington, Nov. 20, 1854.

ON THE PETITION of Franklin Ransom and Uziah Wenman, of the city of New York, praying for the extension of a patent granted to them the 13th day of February, 1841, for an improvement in "the mode of applying water to fire engines so as to render their operation more effective," for seven years from the expiration of said patent, which takes place on the 13th day of February, 1854:

It is ordered that the said petition be heard at the Patent Office on Monday, the 29th of January next, at 12 o'clock M., and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days from the day of hearing. All testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the Office, which will be furnished on application.

The testimony in the case will be closed on the 19th of January; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia. Penn.; Scientific American, N. Y.; and New Hampshire Patriot, Concord, N. H., once a week for three successive weeks previous to the 29th of January next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 14 3

UNITED STATES PATENT OFFICE,
Washington, November 18, 1854.

ON THE PETITION of Squire Whipple, of Albany, New York, praying for the extension of a patent granted to him on the 24th April, 1841, for an improvement in "the construction of iron truss bridges," for seven years from the expiration of said patent, which takes place on the 24th day of April, 1855—

It is ordered that the said petition be heard at the Patent Office, on Monday, the 26th of March next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 16th of March: depositions, and other papers relied upon as testimony, must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia, Pa.; Scientific American, New York, and New Hampshire Patriot, Concord, N. H., once a week for three successive weeks previous to the 26th day of March next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 13 3

CIRCULAR SAW MILLS—The undersigned manufacture for sale Child's Patent Circular Saw Mills for cutting lumber from logs of any size, with 40 and 24 inch, to 48 and 54 inch saws. Also single mills with 36 inch to 72 inch saw. These machines are warranted capable of cutting more lumber in a given time than any other saw mills in use. H. WELLS & CO., Florence, Hampshire Co, Mass. 13 3*

A Practical Engineer at present in New York, is about to return to England, where he has a manufactory of the first class, is desirous of introducing some good American invention in that country. Letters addressed Engineer, care of AUCHINCLOSS & SONS, 49 Beaver street, N. Y. 13 2*

HARRISON'S MILL, PRICE LIST, &c.—These Mills are warranted to give satisfaction.

Size of stone, - - - -	20 inch.	30 inch.	3 feet.	4 feet.
Cash price of single geared mills - - -	$100	$200	$300	$400
Do. of double geared do.	$115	$235	$330	$450
Bush. they grind in 10 h	50	150	225	350
Horse power required	1 to 4	6 to 12	12 to 18	50 to 30
Revolutions per minute	500to700	500to800	400to700	400to550
Size of pulleys - - -	9 in.	15 in.	18 in.	24 in.
Width of do. - - - -	5 in.	8 in.	10 in.	12 in.
Hight of center of pulley from the floor - -	9 in.	10 in.	11 in.	14 in.
Weight of Mills - - -	500 lbs.	1400 lbs.	1800 lbs.	300 lbs.
Hight of do. with hopper	2 ft. 9 in.	2 ft. 9 in.	4 feet.	5 fe3t.

The above sizes, with the latest improvements, to be had of EDWARD HARRISON, sole manufacturer, New Haven, Conn. 12 7*

READING'S PATENT HORSE POWER CORN Sheller and Cleaner. Patented July 13th, 1852. This machine took the first premium in 1853 at the World's Fair, American Institute, New York; Franklin Institute, Philadelphia, and six other county and State Fairs, and its superiority is fully established: it will shell and clean perfectly from 75 to 150 bushels per hour, the right to make and sell the machines can be had by responsible manufacturers at $6 each, and agents who effect sales of Territory shall be entitled to 50 per cent. of the gross receipts, as the owner is unable to attend to the business, here is an inducement for persons to engage, as the utility of the machine is known. Apply to WM. READING, Washington, D. C. 11 4*

MACHINE GROUND CIRCULAR SAWS—(Patent applied for.) Mill men would do well to try these saws, are perfectly free from thin or thick places, can be used thinner and with less sett. and run faster than any other hitherto made. All diameters and thicknesses warranted perfectly true. HENSHAW & CLEMSON, 31 Exchange street, Boston. 11 5*

IMPORTANT TO INVENTORS, &c., &c.—ALFRED ASTON, No. 4 High street, Birmingham, England, is open to purchase for cash all kinds of mechanical and useful inventions or manufactured articles that will command a ready sale in England. Established in the year 1770 for the sale of all articles in the hardware and general trade. Address paid letters as above. 11 4

DICTIONARY OF TECHNICAL TERMS—In French, English, and German. A new work presenting all the terms used in science and art. The terms are first given in French, then in English and German. It is the first of three volumes arranged differently, and is a very useful work. For sale at this office, price $1,31

TO SPECULATORS IN PATENT RIGHTS—has several improvements, (some in machinery and some of them in household articles) which will be sold on terms to admit of profitable speculations. Apply corner Myrtle and Classon Aves., East Brooklyn. 11 4

THE FRENCH EXHIBITION—Parties who have applied for space in the French Palace of Industry, and who do not intend to be present at the Exhibition, are recommended by the undersigned to arrange with Messrs. Gardissal & Co., No. 29 Boulevard St. Martin, Paris, who are prepared to put upon Exhibition, attend, and effect sales of articles intrusted to their care. It is a responsible concern. S. H. WALES, State Commissioner, Scientific American Office.

YOU CAN GET THE NEW YORK WEEKLY SUN three months for 25 cts.; six months 50 cts.; one year, 75 cents, 16 months, $1. Or three copies one year, $2; eight copies $5; twenty-five copies $15; and by canvassing for subscribers you may get one of the five cash prizes - $50, $20, $15, $10, and $5—for the largest lists sent in before 3rd Feb.—Specimen copies gratis.—Send letters and money (post-paid) to MOSES S. BEACH, Sun Office, New York. 6

COTTON AND WOOLEN MANUFACTURers' Supplies of every description; also machinery of all kinds; wrought-iron Tackle Blocks of all sizes; Leather Belting superior oak tanned; Bolts, Nuts, and Washers of all sizes on the most reasonable terms.

6 13* SAML. B. LEACH, 51 Broad st.

KENTUCKY LOCOMOTIVE WORKS—Corner of Kentucky and Tenth streets, Louisville, Ky.—The proprietors of the Kentucky Locomotive Works would respectfully inform Railroad Companies and the public generally, that, having completed their establishment, they are now prepared to receive and execute orders with fidelity and dispatch. They will contract for Locomotives, Passenger, Baggage, Freight, Gravel, and Hand Cars, of every style and pattern, as well as all kinds of Stock and Machinery required for railroads.—Particular attention will be paid to Repairing, for which they have every facility. They are also prepared to contract on favorable terms for building all kinds of Machine Tools, such as Turning Engines, Laths, Planers, Drills, Slotting, Splining, and Shaping Machines of every variety of pattern. Having also a large Foundry connected with the establishment, orders for castings are solicited, and will be filled with promptness. Car Wheels of any pattern can be furnished on short notice. Double and single plate and Spoke Wheels of all sizes constantly on hand. Communications or orders must be addressed to OLMSTED, TENNEYS & PECK, Louisville, Ky. 40 6m*

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N. B.—Reliable orders filled for any part of the United States and Europe. 6 10*

BUFFALO MACHINERY DEPOT—Terrace St. and 36 Lloyd st., Buffalo; J. W. HOOKER, Proprietor, H. C. Brown, Superintendant, offers for sale Machinists' tools of all kinds: Engine Lathes, Planers, Drills, Chucks, Boring Mills; also machinery of all kinds on hand or furnished to order. 7tf

1854—MICHIGAN CENTRAL R.R. LINE D.W. WHITING, Freight Agent, and also General Forwarder, having been a practical machinist, is prepared with skill and implements to handle and ship by any line, all kinds of machinery and manufacturers' wares. Mark plainly, care D. W. WHITING, Buffalo, N. Y. 7tf

STEAM ENGINES AND BOILERS FOR SALE.—One new eight-horse engine. One second hand five-horse engine. Tubular boilers, second-hand, suitable for same. One second-hand two horse portable engine and boiler. THOS. PROSSER & SON, 28 Platt street, 4tf

STAVE AND BARREL MACHINERY—Hutchinson's Patent. This machinery which received the highest award at the Crystal Palace, is now in daily operation there. Staves, heading, &c., prepared by it are worth to the cooper 20 to 40 per cent. more than when finished in any other way. Special attention is invited to the improved Stave Jointer. Apply to C. B. HUTCHINSON & CO., Crystal Palace, or Auburn, N. Y. 13 tf

PATENT DRIERS—Zinc Driers, Graining Colors, Stove Polish, Gold Size, &c., &c., 114 John street, New York. QUARTERMAN & SON, Manufacturers. 1 6m

NEW HAVEN MANUFACTURING COMPANY Machinists' Tools. Iron planers and Engine Lathes of all sizes. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Chucks, &c., on hand and being built by the quantity, which enables us to sell low. For cuts giving full description and prices, address New Haven Manufacturing Co., New Haven, Conn. 13 tf

A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Messrs. Munn & Co., Scientific American. 16 1y*

VAIL'S CELEBRATED PORTABLE STEAM Engines and Saw Mills, Bogardus' Horsepowers, Smut Machines. Saw and Grist Mill Irons and Gearing, Saw Gummers, Ratchet Drills, &c. Orders for light and heavy forging and castings executed with dispatch. 8 1y* LOGAN VAIL & CO., 9 Gold st., N. Y.

HARRISON'S GRAIN MILLS—Latest Patent.—$1000 reward offered by the patentee for their equal. A supply constantly on hand. Liberal Commissions paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to S. C. HILLS, our agent, 12 Platt Street, New York. 13 tf

ENGINEERING—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc.

CHARLES W. COPELAND,
1 tf Consulting Engineer, 64 Broadway.

PRICES GREATLY REDUCED—JOHN PARSHLEY, New Haven. Conn., will have 12 of his No. 2 Iron Planers finished by the 1st of January, 1855, to plane 12 feet long, 36 inches wide and 30 inches high, with down and angle feed in the cross-head, they weigh about 8,000 lbs, and are in workmanship and design equal to any planers built in New England. Price 550 dollars cash. Boxing and Shipping extra. For cuts address as above. 13 tf

ESTABLISHED IN 1796—Philosophical, Mathemat cal. and Optical Instruments. Our priced and illustrated Catalogue furnished on application, and sent by mail free of charge. McALLISTER & BROTHER, Opticians, 48 Chesnut st., Philadelphia. 9tf

IRON PLANERS—NEW PATTERN—Now building, and for sale on better terms than any others in the country of same quality. Address New Haven Manufacturing Co., New Haven, Conn. 11 tf

IRON MOLDERS' FACINGS—Viz., Sea Coal, Anthracite and Charcoal, Soapstone and Black Lead, for sale by G. O. ROBERTSON, 135 Water street, corner of Pine. 11 4*

PIG IRON—SCOTCH AND AMERICAN—Also Cupola Fire Bricks, Clay and Sand, for sale by G. O. ROBERTSON, 135 Water street, corner of Pine. 11 4*

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NORTHVILLE MACHINE WORKS—Manufactory of Machinists Tools, consisting of Engine Lathes, Power Planers, Hand Lathes, Engine Lathe for turning chair stuff, all of the most improved patterns and quality of workmanship. Worcester, Northville, Mass.. August 9, 1854. TAFT & GLEASON. 50 1y*

WIRE ROPE OF IRON AND COPPER—For Mines, Inclined Planes, Hoisting and Steering purposes, Stays or Braces, &c., &c., much safer and far more durable than the best hemp or hyde ropes. Also for Sash Weights, Dumb Waiters, Lightning Conductors, &c. CHARLES W. COPELAND, No. 64 Broadway. 5 3m

MACHINISTS TOOLS—SHRIVER & BROS., Cumberland, Md., (on B. and O. Railroad, midway between Baltimore and the Ohio River,) manufacturers of Lathes, Iron Planers, Drills and other machinists tools 50 6m*

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Science and Art.

Attraction.

If there be any one phenomenon more than another which has puzzled philosophers to explain, it is that which is called "attraction." Any attempt to explain it by word involves the necessity of stating that several kinds or powers of attraction are recognised. First, may be noticed the attraction of the earth towards all bodies above its surface. That which causes matter to "tumble" or "fall down" is called gravitation, or the earth's attraction. Secondly, there is what is termed cohesive attraction, which regulates the form of bodies, whether they be solid as a rock, or granular, like sand. Another sort of attraction is named affinity, or chemical attraction, which produces all sorts of compounds, such as water, salt, sugar, &c., which are made up of substances of a totally opposite nature, held together by affinity. Were it not for this peculiar attraction of one substance to another, the whole world would be resolved into its elements; nothing would exist but a few metals, three or four gases, some sulphur, and charcoal; but by the force of affinity these different things unite, and produce all the beauties of nature. Thirdly, there is a magnetic attraction, or magnetism—an effect observed in only a very few substances, such as iron, nickel, and cobalt. Lastly, we have capiliary attraction. By this force the sap rises in trees; a drop of water at the root finds its way to the summit of the loftiest poplar. Although we have made these divisions of the various powers which attraction exhibits, yet we are no nearer to the comprehension of the cause which produces the effect. Could we but ascertain the reason why a stone falls towards the earth when released from the hands, it is probable that we should soon discover the cause of the motion of all the heavenly bodies. Could we but suspend and resume the power of gravitation at will, we could travel round the earth in twenty-four hours; we could then rise a little above the earth's surface, and remain like a gossamer in the air; the world would continue to revolve as it now does, upon its axis, at the rate of a thousand miles an hour. This would rapidly bring Africa and Australia under us, and by resuming gravitation we could descend where we pleased. Wonderful as this idea may be to the uninitiated, it is nevertheless not beyond the hope of realization by many philosophers. This desire is buoyed up by analogy. The laws of nature can be overcome and subverted in many ways. For instance, Davy produced the metal potassium from pearlash, by counteracting affinity with a stream of electricity. Gravity, or the earth's attraction, may be held at bay—remember Mount Olivet!

SEPTIMUS PIESSE.

Aluminium Steel.

The great affinity of aluminium for carbon, with which it forms a very stable and exceedingly hard alloy, renders it very valuable in my system of manufacturing steel. It serves to fix the carbon in the metal, so that the same piece of steel may be heated and tempered several times without alteration.

Aluminium generally makes steels and alloys of great hardness, very white, dull, and damasked; these alloys are ductile and malleable. The alloys of silicium, on the contrary, have a short granular fracture, of a dull white, without lustre; they are excessively hard, but brittle, and become more and more so in proportion as the quantity of silicium renders metals and alloys capable of being pounded like stones under the pestle. —[A. Chenot in the *Comptes Rendus.*

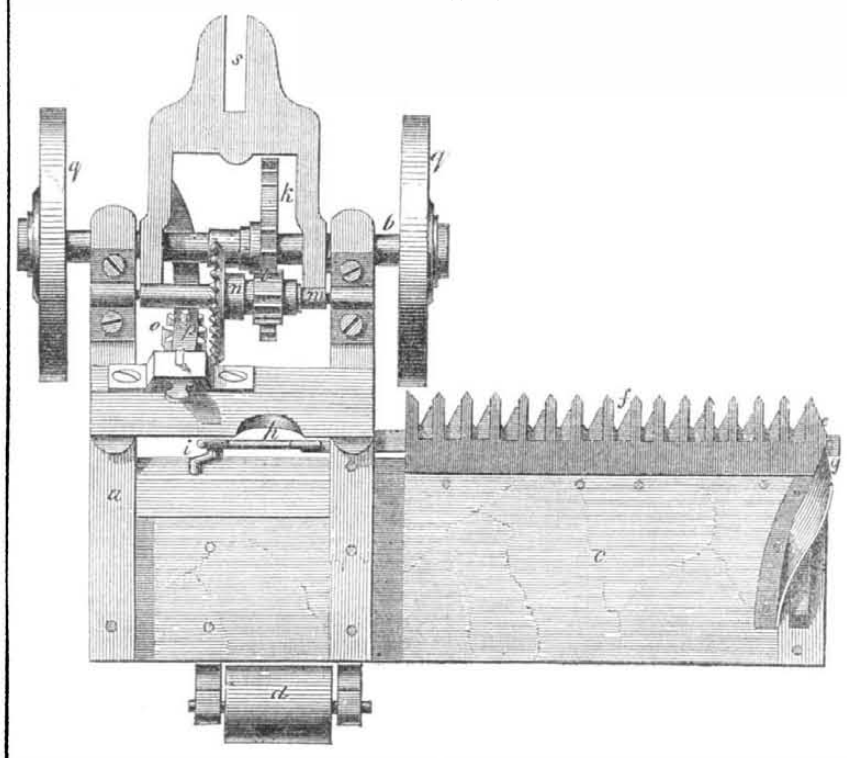
Starch Found in the Brain.

Some *savans* in London have lately excited a deal of interest among the profession, by the announcement of the discovery of *starch* in the human brain. It appears, chemically, that it only requires to add the elements of water to those of fibrine to procure fat, ammonia, and cellulose or *starch.* It may be possible, yet, for the brain to become a "galvanic battery," as is said to be the case by some of the proselytes to the new doctrines of psychology and mesmerism. This discovery of cellulose in the brain must naturally startle the physiologist, for it would decidedly show some relationship between *animals and plants*, as this "corpora amylacea" is said to be *identical in both.* It is really curious that such substances should be discovered in the body. It is well known that M. Bernard has ascertained that the liver produces sugar—the discovery of which, it is said, had such an effect on his mind, "that he did not sleep for three successive nights afterwards."—[Bos. Med. and Surgical Journal.

History of Reaping Machines.—No. 11.

The next patent granted after that of Wm. Manning, in 1831, was Obed Hussey's, in Dec. 31st, 1833, during the Presidency of Andrew Jackson, of which fig. 34 is a top view. *a* is the frame, *b* is the main axle, on the ends of which are wheels, *q q*. The rear of the machine is sustained by a roller, *d*, which runs on the ground and keeps up the platform. *e* are a series of iron guards fixed permanently to the platform, and extending seven or eight inches beyond it. They are set about three inches apart, about three inches wide at the base, and taper towards the point. These guards are both joined at the point and near the back, the space between them forming a long horizontal slit, or rather a range of openings and slits. *f* are the saw cutters formed of thin triangular plates of steel, fastened to a straight flat iron or steel rod, *g*. These steel plates or cutters are three inches wide at their base, are four and a half inches long, sharp on both sides, and taper to a point. This series of saw cutters play between the guards, in other words, in the slots between the upper and lower fingers, *e*. The inner end of the plate, *g*, of the cutters is

FIG. 34.



connected to a pitman, *h*, which is attached to a crank, *i*, and receives its motion from gearing connected with the main axle, *b*.—The crank is geared to receive sixteen revolutions during one of the main wheels, *q*. *k l n p* are the gearing, by which the crank, *i*, receives rotary motion, and the cutters a reciprocating motion. The pole is secured in the front of the machine at *s*, for one, or two, or more horses to draw it. All the parts and combinations of this reaper are simple and easily understood. The figure is taken from the drawing of the patent, and it will be observed that all the main features of the reapers now in use are embraced in this machine. It was intended to cut both grain and grass. The following are the claims embraced in the patent:

First, The straight horizontal saw, with the teeth sharp on their two sides for cutting grain. Second, The guards, forming double bearers above and below the saw, whereby the cutting is made sure, whether with a sharp or dull edge; the guards at the same time protecting the saw from rocks or stones, or other large substance it may meet with. Third, The peculiar construction, that the saw teeth may run free, whereby the necessary pressure and consequent friction of two corresponding edges cutting together, as on the principle of scissors, is entirely avoided. Fourth, The peculiar arrangement by which the horses are made to go before the machine, and the general arrangement of the parts as above described.

THE TOLLEMACHE REAPER—*Correction*—We have received a letter from Mr. Hussey, in reference to the Tollemache Reaper, illustrated on page 80. He says that Mr. Tollemache had nothing to do with that machine, more than to send to New York for a Hussey reaper about five years since, for his friend John Ellis, Pitt street, Liverpool, who took it to his farm near that city, and has used it every year since, and where Mr. Hussey saw it in in operation in 1853. R. Garrett, of Leiston, England, an agricultural implement maker, having heard that Mr. Ellis had procured such a machine from America, made application for the privilege of making a drawing of it. This was granted by Mr. Ellis for a fee of ten pounds, which was paid, and Mr. Garrett made a working machine from these drawings and exhibited it at the Crystal Palace, as the Tollemache Reaper, in order to nettle Mr. Ellis because he had charged him so much for taking drawings of it. "This," says Mr. Hussey, "is the simple history of the Tollemache Machine."

Colored Glass and the Growth of Plants.

Chambers' *Journal* says:—"Recent discovery has shown that remarkable effects can be produced on plants, by interposing colored glass between them and the sun. Blue glass accelerates growth, and Messrs. Lawson, of Edinburgh, have built a stove-house glazed with blue glass, in which they test the value of seeds for sale or export. The practice is to sow a hundred seeds, and to judge of the quality by the number that germinate; the more, of course, the better. Formerly, ten days or a fortnight elapsed while waiting for the germinating of the seeds; but in the blue stove-house two or three days suffice—a saving of time, worth, so say the firm, $2500 a year.

This use of color in the growth of plants is not altogether new, but its application to the germination of seeds has not, perhaps, commanded the attention it deserves. But all scientific horticulturists must be familiar with the experiments of colored glasses upon the palm plants at the Kew gardens, and the gratifying success that attended the experiments. Varying climates will give varying results, just as solar rays vary. We have no doubt that many of the rich tints of flowers of other climes could be made perfect in this country by properly colored glasses, just as the palms of Kew were made by colored glasses to rival the palms of the tropics.—The subject opens a wide field for experiments that would richly remunerate an inquiring and tasteful horticulturist.

The proprietors of The Cincinnati *Gazette* gave a grand supper to their friends on the evening of the 4th inst., the fiftieth anniversary of its existence. Col. Schouler, formerly of Boston, the editor, was in the chair, and did the honors of the evening with ability. That paper never passed a regular publication day from its commencement in 1804 without issuing a paper.

LITERARY NOTICES.

TOWN AND COUNTRY, or, Life at Home and Abroad, Within and Without us.—This is the title of a very agreeable volume from the pen of John S. Adams. It seems to be a collection of literary illustrations which cover an extensive range of subjects, embracing thrilling tales, poetry, poems, etc. Few can fail to be interested in its pages. The variety of its contents and the high moral tone which pervade them, render the volume desirable both for individual and family reading. Boston, J. Buffum, 23 Cornhill: New York, Kiggins & Kellogg, 88 John st.

BLACKWOOD'S MAGAZINE—The last number of this distinguished magazine has been promptly re-published by Messrs. Leonard Scott & Co., 79 Fulton st., this city. The leading article is on Turkey and its Population, and is an interesting one at the present moment. Another article, on Color in Nature and Art, is quite scientific on the fashions, detailing with great minuteness the colors most suitable for bonnets and dresses according to the complexions of the wearers.

THE NAUTICAL MAGAZINE, for this month contains some excellent criticisms on model ships, and comes down on Darius Davidson's "Swordfish Model," with a keen axe, calling it a "nautical humbug." Published and edited by Griffiths & Bates, 79 John street, this city.

THE OLD KNICKERBOCKER—For December—is as fresh and youthful as ever. It contains many first rate articles, and the Editor's table is always spread with a feast for any literary epicure. Published by S. Hueston, 348 Broadway.

PUTNAM'S MONTHLY—For December—contains a fine steel portrait of the author of the "Moosehead Journal," and seventeen original articles, embracing "Israel Potter," continued, in which Paul Jones' descent on St. Mary's Isle, and his fight with the ship of war *Drake*, are graphically described. It is an excellent number.

HALL'S JOURNAL OF HEALTH—Edited by Wm. Hall, M. D., No. 42 Irving Place. One dollar a year. The December number of this very useful journal is issued, and contains several very interesting and instructive articles. It is published every month, and is by far the most common-sense work upon health with which we are acquainted. It is worth a dollar a number instead of the very low price of a dollar a year.

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